

**MINISTRY OF RAILWAYS**  
(RAILWAY BOARD)  
**NOTIFICATION**

New Delhi, the 7th April, 2021

**Engineering Services Examination Rules, 2021**

**No. 2020/E(GR)I/18/1.**—The Rules for a Combined Competitive Engineering Services Examination to be held by the Union Public Service Commission in 2021 for the purpose of filling vacancies in the following Services/Posts are, with the concurrence of the Ministries/Departments concerned, published for general information.

**CATEGORY I—CIVIL ENGINEERING**

**Group-A Services/Posts**

- (i) Central Engineering Service
- (ii) Central Engineering Service (Roads), Group-A (Civil Engineering Posts).
- (iii) Survey of India Group 'A' Service.
- (iv) \*AEE (Civil) in Border Road Engineering Service.
- (v) Indian Defence Service of Engineers.
- (vi) AEE (QS&C) in MES Surveyor Cadre.
- (vii) Central Water Engineering (Group 'A') Service.

**CATEGORY II—MECHANICAL ENGINEERING**

**Group-A/B Services/Posts**

- (i) AEE in GSI Engineering Service Gr 'A'.
- (ii) Indian Defence Service of Engineers.
- (iii) Indian Naval Armament Service (Mechanical Engineering Posts).
- (iv) Indian Naval Material Management Service (Mechanical Engineering Posts)
- (v) Central Water Engineering (Group 'A') Service.
- (vi) Indian Skill Development Service.
- (vii) Defence Aeronautical Quality Assurance Service/SSO-II (Mechanical).
- (viii) Central Electrical and Mechanical Engineering Service(Mechanical Engg.)

**CATEGORY III—ELECTRICAL ENGINEERING**

**Group-A/B Services/Posts**

- (i) Central Electrical & Mechanical Engineering Service (Electrical Engineering Posts).
- (ii) Indian Defence Service of Engineers.
- (iii) Indian Naval Material Management Service (Electrical Engineering Posts)
- (iv) Central Power Engineering Service Gr 'A' (Electrical Engineering Posts).
- (v) Indian Naval Armament Service
- (vi) Defence Aeronautical Quality Assurance Service/SSO-II (Electrical).
- (vii) Central Power Engineering Service Gr 'B' (Electrical Engineering Posts).

**CATEGORY IV—ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

**Group-A/B Services/Posts**

- (i) Indian Radio Regulatory Service Gr 'A'.
- (ii) Indian Telecommunication Service Gr 'A'.

- (iii) Indian Naval Armament Service (Electronics and Telecom Engineering Posts).
- (iv) Indian Naval Material Management Service (Electronics and Telecom Engineering Posts)
- (v) Junior Telecom Officer Gr 'B'.
- (vi) Defence Aeronautical Quality Assurance Service/SSO-II (Electronics & Tele).

All candidates (male/female/transgender) are requested to carefully read these Rules and the examination notice of the UPSC derived from these Rules.

**\*The eligibility of transgender for AEE (Civil) in Border Road Engineering Service shall be as per the decision taken by the Government in due course.**

The examination will be conducted by the Union Public Service Commission in the manner prescribed in Appendix-I to these Rules.

The dates on which and the places at which the examination will be held shall be fixed and notified by the Commission.

2. A candidate may compete in respect of any one of the categories of Services/Posts viz., Civil Engineering or Mechanical Engineering or Electrical Engineering or Electronics and Telecommunication Engineering. A candidate who qualifies on the result of the written part of the examination will be required to indicate clearly in the detailed application form the Services/Posts for which he/ she wishes to be considered in the order of preference. The candidate is advised to indicate as many preferences as he/ she wishes to so that having regard to his/her rank in order of merit due consideration can be given to his/her preferences when making appointment.

**Alongwith the on-line Detailed Application Form (DAF) scanned documents of in support of date of birth, category (viz., SC/ST/OBC { OBC Annexure (for OBC category only)} and EWS {EWS Annexure (for EWS category only)} are required to be mandatorily submitted. Any delay in submission of the DAF or documents in support beyond the prescribed date will not be allowed and will lead to cancellation of the candidature for the ESE-2021. The DAF and/or supporting documents sent through any mode other than the on-line mode, as may be made available by the UPSC on its website, will not be accepted.**

- N.B.** (i) Candidates are advised to indicate all the Services/ Posts for which they are eligible in terms of the Rules in the order of preference in their detailed application form. In case a candidate does not give any preference for any Service/Post or does not include certain Services/Posts in his/her application form, it will be assumed that he/ she has no specific preference for those Services/Posts and in that event he/she shall be allocated to any of the remaining Services/Posts in the order as appearing in the notification and in which there are vacancies after allocation of candidates according to the Services/ Posts of their preference.
- (ii) No request for addition/alteration in the preferences indicated by a candidate in his/her detailed application form will be entertained by the Commission.
  - (iii) Departmental candidates are the candidates admitted to the examination under age relaxation [Vide Rule 5(b)]. Such candidates may give their preferences for the Services/Posts in other Ministries/Departments also.
  - (iv) Candidates admitted to the examination under the proviso to Rule 6 will be considered only for the posts mentioned in the said proviso and their preference for the Services and Posts, if any, will be ignored.
  - (v) The candidates will be allotted to various Services/ Posts strictly in accordance with their merit position, preferences exercised by them and number of vacancies, subject to their medical fitness.

3. The number of vacancies to be filled through the examination will be specified in the Notice issued by the Commission.

Reservation will be made for candidates belonging to the Scheduled Castes, the Scheduled Tribes, the Other Backward Classes, Economically Weaker Section (EWS) and Persons with Benchmark Disability categories in respect of vacancies as may be fixed by the Government.

4. A candidate must be either :—

- (a) a citizen of India, or
- (b) a subject of Nepal, or
- (c) a subject of Bhutan, or
- (d) a Tibetan refugee who came over to India before the 1st January, 1962 with the intention of permanently settling in India, or
- (e) a person of Indian origin who has migrated from Pakistan, Burma, Sri Lanka, the East African countries of Kenya, Uganda, the United Republic of Tanzania, Zambia, Malawi, Zaire and Ethiopia or Vietnam with the intention of permanently settling in India :

Provided that a candidate belonging to categories (b), (c), (d) and (e) above shall be a person in whose favour a certificate of eligibility has been issued by the Government of India.

A candidate in whose case a certificate of eligibility is necessary, may be admitted to the examination but the offer of appointment may be given only after the necessary eligibility certificate has been issued to him/her by the Government of India.

5. (a) A candidate for this examination must have attained the age of 21 years and must not have attained the age of 30 years on the **1<sup>st</sup> January, 2021** i.e., he/she must have been born not earlier than **2<sup>nd</sup> January, 1991** and not later than **1<sup>st</sup> January, 2000**.
- (b) The upper age-limit of 30 years will be relaxable upto 35 years in the case of Government servants of the following categories, if they are employed in a Department/ Office under the control of any of the authorities mentioned in column 1 below and apply for admission to the examination for all or any of the Service(s)/Post(s) mentioned in column 2, for which they are otherwise eligible.
- (i) A candidate who holds substantively a permanent post in the particular Department/Office concerned. This relaxation will not be admissible to a probationer appointed against a permanent post in the Department/Office during the period of his probation. However, this relaxation will be admissible to a probationer so appointed provided he/she already retains a lien on a permanent post in a Department/Office under the control of any of the authorities mentioned in column 1 below.
- (ii) A candidate who has been continuously in a temporary service on a regular basis in the particular Department/Office for at least 3 years on the **1<sup>st</sup> January, 2021**.

Column 1	Column 2
Central Public Works Department	C.E.S. Group 'A', CE&MES Gr 'A'
Ministry of Road Transport and Highways	Central Engineering Service (Roads) Gr. 'A'
Ministry of Communication, Deptt. of Telecommunication	Indian Radio Regulatory Service Group 'A' Indian Telecommunication Service Group 'A', J.T.O. (G.C.S. Gr. 'B')
Min of Defence, Deptt. of Defence Production, Directorate General of Aeronautical Quality Assurance	Defence Aeronautical Quality Assurance Service(DAQAS) Gr 'A'
Min of Science and Technology, Deptt. of Science and Technology	Survey of India Gr 'A' Service
Geological Survey of India	Assistant Executive Engineer Gr 'A'
Border Roads Organisation	BRES Gr. 'A'
Indian Navy	Indian Naval Armament Service, Indian Naval Material Management Service
Military Engineer Services	Indian Defence Service of Engineers (IDSE) Group 'A' AEE(QS&C) in Military Engineer Service (MES) Surveyor Cadre
Min of Jal Shakti, Department of Water Resources, River Development & Ganga Rejuvenation, Central Water Commission	Central Water Engineering Group-A Service.
Central Electricity Authority	CPES Gr 'A' & CPES Gr 'B'.
Ministry of Skill Development & Entrepreneurship	Indian Skill Development Service

(c) The upper age-limit prescribed above will be further relaxable :

- (i) Up to maximum of five years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe.
- (ii) Up to maximum of three years in the case of candidates belonging to Other Backward Classes who are eligible to avail of reservation applicable to such candidates.
- (iii) Up to maximum of three years, in the case of Defence Services personnel, disabled in operations during hostilities with any foreign country or in a disturbed area, and released as a consequence thereof.
- (iv) Up to maximum of five years in the case of Ex-servicemen including Commissioned Officers and ECOs/SSCOs, who have rendered at least five years Military Service as on 1<sup>st</sup> January, 2021 and have been released (i) on completion of assignment (including those whose assignment is due) completed within one year from 1<sup>st</sup> January, 2021 otherwise than by way of dismissal or discharge on account of misconduct or inefficiency, or (ii) on account of physical disability attributable to Military Service, or (iii) on invalidment.
- (v) Up to maximum of five years in the case of ECOs/SSCOs who have completed an initial period of assignment of five years of Military Service as on 1<sup>st</sup> January, 2021 and whose assignment has been extended beyond five years and in whose case the Ministry of Defence issues a certificate that they can apply for civil employment and they will be released on three months notice on selection from the date of receipt of offer of appointment.

- (vi) Up to a maximum of 10 years in the case of Persons with Benchmark Disability viz. **Low vision**, deaf and Hard of Hearing, Locomotor Disability including Leprosy cured, Dwarfism, Acid Attack victims and Muscular Dystrophy.

**Note I :** Candidates belonging to the Scheduled Castes and the Scheduled Tribes and Other Backward Classes who are also covered under any other clauses of Rule (5)(c) above, will be eligible for grant of cumulative relaxation under both the categories.

**Note II :** The term ex-servicemen will apply to the persons who are defined as Ex-servicemen in the Ex-servicemen (Re-employment in Civil Services and Posts) Rules, 1979, as amended from time to time.

**Note III :** The age concession under Rule 5(c) (iv) and (v) will be admissible to Ex-Servicemen i.e. a person who has served in any rank whether as combatant or non-combatant in the Regular Army, Navy and Air Force of the Indian Union and who either has been retired or relieved or discharged from such service whether at his own request or being relieved by the employer after earning his or her pension.

**Note IV :** The details of Functional Classification (FC) and Physical Requirements (PR) of each service are indicated in Annexure-I of these Rules which are identified and prescribed by the respective Cadre Controlling Authorities (CCAs) as per the provisions of Section 33 and 34 of the Rights of Persons with Disabilities Act, 2016. Only those category (ies) of disability (ies) mentioned in Annexure-I shall apply for the examination under Persons with Benchmark Disability (PwBD) Category. Therefore, the candidates belonging to the Persons with Benchmark Disability categories are advised to read it carefully before applying for the examination.

**Note V :** Notwithstanding the provision of age relaxation under Rule 5(c) (vi) above, a candidate with Benchmark Disability will be considered to be eligible for appointment only if he/she (after such physical examination as the Government or appointing authority, as the case may be, may prescribe) is found to satisfy the requirements of physical and medical standards for the concerned Service/ Posts to be allocated to the Persons with Benchmark Disability candidate by the Government.

**Note VI :** A candidate will be eligible to get the benefit of community reservation only in case the particular caste to which the candidates belong is included in the list of reserved communities issued by the Central Government. The candidates will be eligible to get the benefit of the Economically Weaker Section (EWS) reservation only in case the candidate meets the criteria issued by the Central Government and in possession of such eligibility certification. If a candidate indicates in his/her application form for Engineering Services Examination, that he/she belongs to General category but subsequently writes to the Commission to change his/her category to a reserved one, such request shall not be entertained by the Commission. Further, once a candidate has chosen a reserved category, no request shall be entertained for change to other reserved category viz. SC to ST, ST to SC, OBC to SC/ST or SC/ST to OBC, SC to EWS, EWS to SC, ST to EWS, EWS to ST, OBC to EWS, EWS to OBC. No reserved category candidates other than those recommended on General Merit shall be allowed to change his/her category from Reserved to Unreserved or claim the vacancies (Services/Cadre) for UR category after the declaration of final result by UPSC.

Further no Persons with Benchmark Disabilities (PwBD) candidate of any subcategory thereunder shall be allowed to change his/her sub-category of disability.

**Candidates seeking reservation/relaxation benefits available for SC/ST/OBC/EWS/PwBD/Ex-Servicemen must ensure that they are entitled to such reservation/relaxation as per eligibility prescribed in the Rules/Notice. They should be in possession of all the requisite certificates in the prescribed format in support of their claim as stipulated in the Rules/Notice for such benefits, and these certificates should be dated earlier than the due date (closing date of the application). (Prescribed Format of Disability Certificate should be submitted by Persons with Benchmark Disability candidates as per Form V to Form VII (as applicable) of Min of Social Justice and Empowerment Notification dated 15<sup>th</sup> June, 2017 as at Annexure-III).**

**A candidate of ESE-2021 will be eligible to get the benefit of the Economically Weaker Section reservation only in case the candidate meets the criteria issued by the Central Government and is in possession of requisite Income & Asset Certificate based on the income for Financial Year (FY) 2020-2021.**

While the above principle will be followed in general, there may be a few cases where there was a gap not more than 3 months between the issuance of a Government Notifications enlisting a particular community in the list of any of the reserved communities and the date of submission of the application by the candidate. In such cases the request of change of community from General to Reserved may be considered by the Commission on merit. In case of a candidate unfortunately becoming person with benchmark disability during the course of examination, the candidate should produce valid documents showing him/her acquiring a disability to the extent of 40% or more (only under **Low vision**, Locomotor Disability including Leprosy cured, Dwarfism, Acid Attack victims & Muscular Dystrophy and Hard of Hearing) as defined under the RPwD Act, 2016 to enable him/her to get the benefits of reservation earmarked for PwBD provided he/she otherwise remains eligible for the Engineering Services Examination as per Rule 19.

**N.B.**—The candidature of a person who is admitted to the examination under the age concession mentioned in Rule 5(b) above shall be cancelled if, after submitting his application he resigns from service or his services are terminated by his

department/office either before or after taking the examination. He will, however, continue to be eligible if he is retrenched from the service or post after submitting his application.

A candidate who after submitting his application to the department is transferred to other department/office will be eligible to compete under departmental age concession provided his application has been forwarded by his parent department.

**SAVE AS PROVIDED ABOVE THE AGE LIMITS PRESCRIBED CAN IN NO CASE BE RELAXED**

The date of birth accepted by the Commission is that entered in the Matriculation or Secondary School Leaving Certificate or in a certificate recognised by the Indian University as equivalent to Matriculation or in an extract from a Register or Matriculates maintained by a University and that extract must be certified by the proper authority of the University or in the Higher Secondary or an equivalent examination certificate.

No other document relating to age like horoscope affidavits, birth extracts from Municipal Corporation Service records and the like will be accepted.

The expression Matriculation/Higher Secondary Examination Certificate in this part of the instruction include the alternative certificates mentioned above.

**Note 1 :** Candidates should note that only the date of birth as recorded in the Matriculation/Secondary Examination Certificate or an equivalent certificate on the date of submission of application will be accepted by the Commission and no subsequent request for its change will be considered or granted.

**Note 2 :** Candidate should also note that once a date of birth has been submitted by them in the application form and entered in the records of the Commission for the purpose of admission to an Examination, no change will be allowed subsequently or at any other Examination of the Commission on any ground whatsoever.

6. A candidate must have—

- (a) obtained a Degree in Engineering from a University incorporated by an Act of the Central or State Legislature in India or other Educational Institutes established by an Act of Parliament or declared to be deemed as University under Section 3 of the University Grants Commission Act, 1956; or
- (b) passed Sections A and B of the Institution Examinations of the Institution of Engineers (India); or
- (c) obtained a Degree/Diploma in Engineering, from such foreign University/College/ Institution and under such conditions as may be recognised by the Government for the purpose from time to time; or
- (d) passed Graduate Membership Examination of the Institution of Electronics and Telecommunication Engineers (India); or
- (e) passed Associate Membership Examination Parts II and III/Sections A and B of the Aeronautical Society of India; or
- (f) passed Graduate Membership Examination of the Institution of Electronics and Radio Engineers, London held after November, 1959 :

Provided that a candidate for the posts of Indian Naval Armament Service (Electronics Engg. Posts) and Indian Radio Regulatory Service Group. 'A' may possess any of the above qualifications or the qualification mentioned below namely :

For Indian Naval Armament Service (Electronics Engg. Posts) - M.Sc. degree or its equivalent with Wireless Communication Electronics, Radio Physics or Radio Engineering as a special subject.

For Indian Radio Regulatory Service Group 'A' – M.Sc. degree or its equivalent with Wireless Communication, Electronics, Radio Physics or Radio Engineering as a subject or Master's Degree in Science with Physics and Radio Communication or Electronics or Telecommunication as a special subject.

**Note 1 :** Eligibility of the candidates of the Institutions concerned will be subject to the decision of the Government in pursuance of the judgement of the Hon'ble Supreme Court of India in the MA 2367/2018 in the Civil Appeal No. 17922/2017 dated 13.08.2019.

**Note 2 :** A candidate who has appeared at an examination the passing of which would render him educationally qualified for this examination, but has not been informed of the result, may apply for admission to the examination. A candidate who intends to appear, at such a qualifying examination may also apply. Such candidates will be admitted to the examination, if otherwise eligible, but their admission would be deemed to be provisional and subject to cancellation, if they do not produce proof of having passed the requisite qualifying examination along with the Detailed Application Form which will be required to be submitted by the candidates who qualify on the result of the written part of the examination. Such proof of passing the requisite examination should be dated earlier than the due date (closing date) for Detailed Application Form for Engineering Services Examination.

**Note 3 :** In exceptional cases the Commission may treat a candidate who has not any of the qualifications prescribed in this rule, as educationally qualified provided that he has passed examinations conducted by other institutions the standard of which in the opinion of the Commission justifies his admission to the examination.

**Note 4 :** A candidate who is otherwise qualified but who has taken a degree from a foreign University which is not recognised by Government, may also apply to the Commission and may be admitted to the examination at the discretion of the Commission.

7. Candidates must pay the fee prescribed in the Commission's Notice.

8. All candidates in Government service, whether in permanent or in temporary capacity or as work charged employees, other than casual or daily rated employees or those serving under Public Enterprises will be required to submit an undertaking that they have informed in writing, their Head Office/Department that they have applied for the Examination.

Candidates should note that in case a communication is received from their employer by the Commission withholding permission to the candidates applying for appearing at the examination, their application will be liable to be rejected/candidature will be liable to be cancelled.

9. The decision of the Commission as to the acceptance of the application of a candidate and his eligibility or otherwise for admission to the examination shall be final.

The candidates applying for the examination should ensure that they fulfill all the eligibility conditions for admission to the Examination. Their admission at all the stages of examination for which they are admitted by the Commission viz. Written Examination and Personality Test will be purely provisional, subject to their satisfying the prescribed eligibility conditions. If on verification at any time before or after the Written Examination or Personality Test it is found that they do not fulfill any of the eligibility conditions, their candidature for the examination will be cancelled by the Commission.

10. No candidate shall be admitted to the examination unless he holds a certificate of admission from the Commission.

11. (1) A Candidate who is or has been declared by the Commission to be guilty of :—

(a) Obtaining support for candidature by the following means, namely:-

(i) offering illegal gratification to; or

(ii) applying pressure on; or

(iii) blackmailing, or threatening to blackmail any person connected with the conduct of the examination; or

(b) impersonation; or

(c) procuring impersonation by any person; or

(d) submitting fabricated/incorrect documents or documents which have been tampered with; or

(e) uploading irrelevant or incorrect photo/signature in the application form in place of actual photo/signature; or

(f) making statements which are incorrect or false or suppressing material information; or

(g) resorting to the following means in connection with the candidature for the examination, namely :-

(i) obtaining copy of question paper through improper means; or

(ii) finding out the particulars of the persons connected with secret work relating to the examination; or

(iii) influencing the examiners; or

(h) being in possession of or using unfair means during the examination; or

(i) writing obscene matter or drawing obscene sketches or irrelevant matter in the scripts; or

(j) misbehaving in the examination hall including tearing of the scripts, provoking fellow examinees to boycott examination, creating a disorderly scene and the like; or

(k) harassing, threatening or doing bodily harm to the staff employed by the Commission for the conduct of the examination; or

(l) being in possession of or using any mobile phone, (even in switched-off mode), pager or any electronic equipment or programmable device or storage media like pen drive, smart watches etc. or camera or bluetooth devices or any other equipment or related accessories (either in working or switched-off mode) capable of being used as a communication device during the examination; or

(m) violating any of the instructions issued to candidates along with their admission certificates permitting them to take the examination; or

(n) attempting to commit or, as the case may be, abetting the commission of all or any of the acts specified in the foregoing clauses;

in addition to being liable to criminal prosecution, shall be disqualified by the Commission from the Examination held under these Rules; and/or shall be liable to be debarred either permanently or for a specified period :-

(i) by the Commission, from any examination or selection held by them;

- (ii) by the Central Government from any employment under them;

and shall be liable to face disciplinary action under the appropriate rules if already in service under Government;

Provided that no penalty under this rule shall be imposed except after :-

- (i) giving the candidate an opportunity of making such representation in writing as the candidate may wish to make in that behalf; and
- (ii) taking the representation, if any, submitted by the candidate within the period allowed for this purpose, into consideration.

(2) Any person who is found by the Commission to be guilty of colluding with a candidate(s) in committing or abetting the commission of any of the misdeeds listed at the clauses (a) to (m) above will be liable to action in terms of the clause (n) above.

12. Engineering Services Examination (ESE) will be in three stages viz. Stage-I: Engineering Services (Preliminary/Stage-I) Examination (Two objective type papers), Stage-II: Engineering Service (Main/Stage-II) Examination (Two Conventional Type Papers) and Stage-III: Personality Test. Details of the Scheme of ESE are given under Appendix-I.

**The Commission will have the discretion to fix Minimum Qualifying Marks for each Paper of Stage-I and Stage-II.**

Only those candidates qualifying at Stage-I will be permitted to appear for Stage-II of the Examination. Similarly only those candidates qualifying at Stage-I and Stage-II will be summoned for Stage-III(Personality Test). Final merit will be made on the basis of marks secured by the candidates in Stage-I + Stage-II + Stage-III.

Provided that candidates belonging to the Scheduled Castes or the Scheduled Tribes or the Other Backward Classes or the EWS may be summoned for Stage-III(Personality Test) by the Commission by applying relaxed standards of selection at Stage-I and Stage-II if the Commission are of the opinion that sufficient number of candidates from these communities are not likely to be summoned for Personality Test on the basis of general qualifying standard in order to fill up the vacancies reserved for them.

13. (i) After Personality Test, the candidates will be arranged by the Commission in the order of merit as disclosed by the aggregate marks finally awarded to each candidate. Thereafter, the Commission shall, for the purpose of recommending candidates against unreserved vacancies, fix a qualifying mark (hereinafter referred to as general qualifying standard) with reference to the number of unreserved vacancies to be filled up on the basis of the examination. For the purpose of recommending reserved category candidates belonging to the Scheduled Castes, the Scheduled Tribes, the Other Backward Classes and the EWS against reserved vacancies, the Commission may relax the general qualifying standard with reference to number of reserved vacancies to be filled up in each of these categories on the basis of the examination:

Provided that the candidates belonging to the Scheduled Castes, the Scheduled Tribes, the Other Backward Classes and the EWS who have not availed themselves of any of the concessions or relaxations in the eligibility or the selection criteria, at any stage of the examination and who after taking into account the general qualifying standards are found fit for recommendation by the Commission shall not be recommended against the vacancies reserved for the Scheduled Castes, the Scheduled Tribes, the Other Backward Classes and the EWS, respectively.

- (ii) While making service allocation, the candidates belonging to the Scheduled Castes, the Scheduled Tribes, the Other Backward Classes and the EWS recommended against unreserved vacancies may be adjusted against reserved vacancies by the Government if by this process they get a service of higher choice in the order of their preference.
- (iii) The Commission may further lower the qualifying standards to take care of any shortfall of candidates for appointment against unreserved vacancies and any surplus of candidates against reserved vacancies arising out of the provisions of this rule, the Commission may make the recommendation in the manner prescribed in sub-rules (iv) and (v).
- (iv) While recommending the candidates, the Commission shall, in the first instance, take into account the total number of vacancies in all categories. This total number of recommended candidates shall be reduced by the number of candidates belonging to the Scheduled Castes, the Scheduled Tribes, the Other Backward Classes and the EWS who acquire the merit at or above the fixed general qualifying standard without availing themselves of any concession or relaxation in the eligibility or selection criteria in terms of the proviso to sub-rule (i). Along with this list of recommended candidates, the Commission shall also maintain a consolidated reserve list of candidates which will include candidates from general and reserved categories ranking in order of merit below the last recommended candidate under each category. The reserve list so maintained shall be treated as confidential till the process of recommendation(s) in terms of sub-rule (v) is finally concluded by the Commission. The number of candidates in each of these categories will be equal to the number of reserved category candidates who were included in the first list without availing of any relaxation or concession in eligibility or selection criteria as per proviso to sub-rule (i). Amongst the reserved categories, the number of candidates from each of the Scheduled Castes, the Scheduled Tribes, the Other Backward Classes and the EWS categories in the reserve list will be equal to the respective number of vacancies reduced initially in each category.

- (v) The candidates recommended in terms of the provisions of sub-rule (iv), shall be allocated by the Government to the services and where certain vacancies still remain to be filled up, the Government may forward a requisition to the Commission requiring it to recommend, in order of merit, from the reserve list, the same number of candidates as requisitioned for the purpose of filling up the unfilled vacancies in each category.

**Note :** Reserve list is not a waiting list to cater to vacancies arising out of other reasons such as candidates not turning up to join, being found medically unfit, left out on account of medical fitness for limited services, resignation or any other reasons. Commission will not take into account such vacancies for release of Reserve List.

14. The minimum qualifying marks as specified under rules 12 and 13 may be relaxable at the discretion of the Commission in favour of Persons with Benchmark Disability candidates in order to fill up the vacancies reserved for them:

Provided that where a candidate belonging to Person with Benchmark Disability obtains the minimum qualifying marks in his own merit in the requisite number for General, or the Scheduled Caste or the Scheduled Tribe or the Other Backward Class or the Economically Weaker Section category candidates, then, the extra candidates belonging to PwBD i.e. more than the number of vacancies reserved for them, shall be recommended by the Commission on the relaxed standards and consequential amendments in the rules will be notified in due course.

15. The form and manner of communication of the result of the examination to individual candidates shall be decided by the Commission in their discretion and the Commission will not enter into correspondence with them regarding the result.

16. Subject to other provisions contained in these rules, successful candidates will be considered for appointment on the basis of the order of merit assigned to them by the Commission and the preferences expressed by them for various Services/Posts at the time of their application.

17. Success in the examination confers no right to allocation and appointment unless the Government is satisfied after such enquiry as may be considered necessary, that the candidate having regard to his character and antecedents and certificates produced by him during the course of examination for the purpose of eligibility as well as claiming any kind of benefit for reservation is suitable in all respects including medical examination for allocation / appointment to the service. The decision of the Government in this regard shall be final.

Attestation Forms are to be submitted only after allocation of services/posts to respective Cadre Controlling /Appointing authorities.

18. To be passed as fit for appointment, a candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the discharge of his duties as an officer of the service. A candidate who after such medical examination as Government or the appointing authority, as the case may be prescribe is found not to satisfy these requirements will not be appointed. A candidate who has been left out on account of medical fitness for limited services and no vacancy being available at his turn cannot be allocated to any service for which he is not fit and where vacancies exists. Candidates declared medically unfit as per medical standards specified in Appendix-II will be left out from the allocation process. The standard for Transgender candidates would be posted on the dedicated webpage of Ministry of Railways before commencement of the Medical Examination of Engineering Services Examination, 2021.

THE ATTENTION OF THE CANDIDATES IS INVITED TO THE REGULATION RELATING TO THE PHYSICAL EXAMINATION PUBLISHED HEREWITH. IT WILL BE SEEN THEREFROM THAT THE PHYSICAL STANDARDS PRESCRIBED VARY FOR DIFFERENT SERVICES. THE CANDIDATES ARE THEREFORE ADVISED TO KEEP THESE STANDARDS IN VIEW WITH SPECIFIC REFERENCE TO SERVICES FOR WHICH THEY HAVE COMPETED/EXPRESSED PREFERENCES TO THE UNION PUBLIC SERVICE COMMISSION.

**“Candidates finally recommended** by Commission on the basis of Engineering Services Examination, 2021 shall be required to undergo medical examination.

The candidates may also please note that :

- (i) Every candidate, on being finally recommended by Commission will be required to undergo medical examination as and when so decided by Ministry of Railways (Railway Board) irrespective of the fact that he/she has appeared for such medical examination in the past and found fit or unfit on the basis of earlier examination.
- (ii) The medical examination will be conducted at various Railway Hospitals under Ministry of Railways (Railway Board) and other additional instructions for candidates listed at Annexure-II. The findings of the Railway Medical Board will be taken as final and binding for all allotment purposes;
- (iii) A sum of Rs. 100 (Rupees One Hundred only) in cash, is required to be paid by them to the Medical Board;
- (iv) No travelling allowance will be paid for the journey performed in connection with the medical examination; and
- (v) The fact that a candidate has been physically examined will not mean or imply that he will be considered for appointment.

**Note.—** In order to prevent disappointment, candidates are advised to have themselves examined by a Government Medical Officer of the standing of a Civil Surgeon, before applying for admission to the examination.

Particulars of the nature of the medical test to which candidates will be subjected before appointment and of the



standards required are given in Appendix II. For the disabled/Ex-Defence Services personnel the standards will be relaxed consistent with requirements of each service.

19. Details of the categories/sub categories of disabilities—(functional classification and Physical Requirements) identified for the various Services/posts :

“For being considered against the vacancies reserved for them, the Persons with Benchmark Disability persons should have disability of forty per cent (40%) or more. The functional classification in their case shall be consistent with the requirements of the concerned services/posts as detailed in Annexure-I. However, such candidates shall be required to meet the physical requirements/abilities as detailed in Annexure-I and to submit Certificate of Disability in the prescribed format as detailed in Annexure-III.

20. No person :—

- (a) who has entered into or contracted a marriage with a person having a spouse living, or
- (b) who having a spouse living has entered into or contracted a marriage with any person, shall be eligible for appointment to service :

Provided that Central Government may if satisfied that such marriage is permissible under the personal law applicable to such person and other party to the marriage and there are other grounds for so doing exempt any person from the operation of this rule.

21. Candidates are informed that some knowledge of Hindi prior to entry into service would be of advantage in passing departmental examinations which candidates have to pass after entry into service.

22. Brief particulars relating to the Services/Posts to which recruitment is being made through this examination, are given in Appendix III.

NAVIN KUMAR, Jt. Secy. (Confidential)

## APPENDIX I

### Section-I

#### Plan of Examination

1. The examination shall be conducted according to the following plan :—

- (i) Stage-I: Engineering Services (Preliminary/Stage-I) Examination (Objective Type Papers) for the selection of candidates for the Stage-II: Engineering Services (Main/Stage-II) Examination;
- (ii) Stage-II: Engineering Services (Main/Stage-II) Examination (Conventional Type Papers) and
- (iii) Stage-III : Personality Test

2. The Engineering Services (Preliminary/Stage-I) Examination will consist of two objective type (multiple choices) questions papers and carrying a maximum of 500 marks (Paper 1 – 200 Marks & Paper II – 300 Marks). Only those candidates who are declared by the Commission to have qualified in the Preliminary/Stage-I Examination in the year will be eligible for admission to the Main/Stage-II Examination of that year provided they are otherwise eligible for admission to the Main/ Stage-II Examination. The Marks obtained in Preliminary/Stage-I Examination by the candidates who are declared qualified for admission to the Main/Stage-II Examination will be counted for determining their final order of merit. The number of candidates to be admitted to the Main/Stage-II Examination will be about six to seven times of the total approximate number of vacancies to be filled in the year through this examination.

**Note I :** The Commission will draw a list of candidates to be qualified for Engineering Services (Main/Stage-II) Examination based on the criterion of minimum qualifying marks in General Studies and Engineering Aptitude Paper (Paper-I) and Engineering Discipline specific paper (Paper-II) of Preliminary/Stage-I Examination.

**Note II:** There will be penalty (Negative Marking) for wrong answers marked by a candidate in the objective type question papers.

- (i) There are four alternative for the answers to every question. For each question for which a wrong answer has been given by the candidate, one-third (0.33) of the marks assigned to that question will be deducted as penalty.
- (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above for that question.
- (iii) If a question is left blank i.e. no answer is given by the candidate, there will be no penalty for that question.

3. Candidates should note that if any irrelevant matter/signages/marks etc. are found written in the answer script(s), which would not be related to any question/answer and/or would be having the potential to disclose the candidate's identity, the Commission will impose a penalty of deduction of marks from the total marks otherwise accruing to the candidate or will not evaluate the said script(s) on this account.

- 4.1 The Engineering Services (Main/stage-II) Examination will consist two conventional type papers in Engineering Discipline specific with duration of three hours and maximum marks of 600 (300 Marks in each paper).
- 4.2 The Stage-III will consist of Personality Test carrying 200 Marks.
- 5.1 Candidates who obtain such minimum qualifying marks in the Stage-I: Engineering Services (Preliminary/Stage-I) and Stage-II: Engineering Services (Main/Stage-II) Examination as may be fixed by the Commission as per its discretion, shall be summoned by them for Stage-III (Personality Test). The number of candidates to be summoned for Personality Test will be about twice the number of vacancies to be filled. The Personality Test will carry 200 marks (with no minimum qualifying marks).
- 5.2 Total marks obtained by the candidates in the Stage-I:(Preliminary/Stage-I) Examination, Stage-II:(Main/Stage-II) Examination and Stage-III (Personality Test) would determine their final ranking. Candidates will be allotted to the various services keeping in view their ranks in the examination and the preference expressed by them for the various services/posts.
6. Candidates are advised to read carefully special instructions to candidates for conventional type tests and objective type tests given in Appendix-III (Part A and Part B) including the procedure regarding filing in the Answer Sheet of objective type tests in the Examination Hall uploaded on the Commission's website ([www.upsc.gov.in](http://www.upsc.gov.in)) on 07.04.2021.
7. In the Personality Test special attention will be paid to assessing the candidate's capacity for leadership, initiative and intellectual curiosity, tact and other social qualities, mental and physical energy, powers of practical application and integrity of character.
8. Conventional papers must be answered in English. Question paper will be set in English only.
9. Details of the syllabi for Stage-I: (Preliminary/stage-I) and Stage-II :(Main/Stage-II) are at Section III.

### Section-II

#### A. Stage-I(Preliminary/Stage-I) Examination :-

The Examination shall comprise of two papers.

Subject	Duration	Maximum Marks
<b>Category-I Civil Engineering</b>		
<b>Paper-I</b> (General Studies and Engineering Aptitude)	2 hrs.	200
<b>Paper-II</b> (Civil Engineering)	3 hrs.	300
Total		500

Subject	Duration	Maximum Marks
<b>Category-II Mechanical Engineering</b>		
<b>Paper-I</b> (General Studies and Engineering Aptitude)	2 hrs.	200
<b>Paper-II</b> (Mechanical Engineering)	3 hrs.	300
Total		500

Subject	Duration	Maximum Marks
<b>Category-III Electrical Engineering</b>		
<b>Paper-I</b> (General Studies and Engineering Aptitude)	2 hrs.	200
<b>Paper-II</b> (Electrical Engineering)	3 hrs.	300
Total		500

Subject	Duration	Maximum Marks
<b>Category-IV Electronics and Telecommunication Engineering</b>		
<b>Paper-I</b> (General Studies and Engineering Aptitude)	2 hrs.	200
<b>Paper-II</b> (Electronics and Telecommunication Engineering)	3 hrs.	300
Total		500

(iii) Details of the syllabi are indicated in Section III.

**B. Stage-II(Main/Stage-II) Examination:-**

The Examination shall comprise of two papers.

Subject	Duration	Maximum Marks
<b>Category-I Civil Engineering</b>		
<b>Paper-I ( Civil Engineering)</b>	3 hrs.	300
<b>Paper-II (Civil Engineering)</b>	3 hrs.	300
Total		600

Subject	Duration	Maximum Marks
<b>Category-II Mechanical Engineering</b>		
<b>Paper-I ( Mechanical Engineering )</b>	3 hrs.	300
<b>Paper-II (Mechanical Engineering)</b>	3 hrs.	300
Total		600

Subject	Duration	Maximum Marks
<b>Category-III Electrical Engineering</b>		
<b>Paper-I ( Electrical Engineering )</b>	3 hrs.	300
<b>Paper-II (Electrical Engineering)</b>	3 hrs.	300
Total		600

Subject	Duration	Maximum Marks
<b>Category-IV Electronics and Telecommunication Engineering</b>		
<b>Paper-I ( Electronics and Telecommunication Engineering Rs.)</b>	3 hrs.	300
<b>Paper-II (Electronics and Telecommunication Engineering)</b>	3 hrs.	300
Total		600

**(C) Stage-III(Personality Test) - 200 Marks.**

**Note 1:** Candidates must write the papers in their own hand. In no circumstances will they be allowed the help of a scribe to write the answers for them. The Persons with Benchmark Disabilities in the categories of **Low Vision** will be provided the facility of scribe, if desired by the person. In case of other category of Persons with Benchmark Disabilities as defined under section 2(r) of RPwD Act, 2016, the facility of scribe will be allowed to such candidates on production of a certificate to the effect that the person concerned has physical limitation to write, and scribe is essential to write examination on behalf, from the Chief Medical Officer, Civil Surgeon/Medical Superintendent of a Government Health Care institution as per proforma at Appendix-IV.

**Note 2:** The candidates have discretion of opting for his/her own scribe or request the Commission for the same. The details of scribe i.e. whether own or the Commission's and the details of scribe in case candidates are bringing their own scribe, will be sought at the time of filling up the application form online as per proforma at Appendix-V.

**Note 3:** The qualification of the Commission's scribe as well as own scribe not be more than the minimum qualification criteria of the examination. However, the qualification of the scribe should always be matriculate or above.

**Note 4:** The Persons with Benchmark Disabilities in the category of **Low Vision** will be allowed Compensatory Time of twenty minutes per hour of the examination. In case of other categories of Persons with Benchmark Disabilities, the facility will be provided on production of a certificate to the effect that the person concerned has physical limitation to write, from the Chief Medical Officer/Civil Surgeon/Medical Superintendent of a Government Health Care institution as per proforma at Appendix- IV.

**Note 5:** The eligibility conditions of a scribe, his/her conduct inside the examination hall and the manner in which and extent to which he/she can help the Persons with Benchmark Disabilities(PwBD) candidates in writing the Engineering Services Examination shall be governed by the instructions issued by the UPSC in this regard. Violation of all or any of the said instructions shall entail the cancellation of the candidature of the PwBD candidate in addition to any other action that the UPSC may take against the scribe.

2. The Commission have discretion to fix minimum qualifying marks in any or all the papers of the examination.
3. Marks will not be allotted for mere superficial knowledge.
4. Deduction upto five per cent of the maximum marks for the written papers will be made for illegible handwriting.
5. Credit will be given for orderly, effective and exact expression combined with due economy of words in the conventional papers of the examination.
6. In the question papers, wherever required, SI units will be used.

**Note.**—Candidates will be supplied with standard tables/charts in SI units in the Examination hall for reference purpose, wherever considered necessary.

7. Candidates are permitted to bring and use battery operated pocket calculators for conventional (essay) type papers only. Loaning or inter-changing of calculators in the Examination Hall is not permitted.

It is also important to note that candidates are not permitted to use calculators for answering objective type papers (Test booklets). They should not therefore, bring the same inside the Examination Hall.

8. Candidates should use only International form of Indian numerals (e.g., 1, 2, 3, 4, 5 etc.) while answering question papers.

### **Section-III Standard and Syllabi**

The standard of paper in General Studies and Engineering Aptitude (Preliminary/Stage-I Examination) will be such as may be expected of an Engineering/Science Graduate. The standard of papers in other subjects will approximately be that of an Engineering Degree Examination of an Indian University. There will be no practical examination in any of the subjects.

#### **General Studies and Engineering Aptitude (Preliminary/Stage-I Examination, Paper I, Objective type, Common to all Candidates)**

1. Current issues of national and international importance relating to social, economic and industrial development
2. Engineering Aptitude covering Logical reasoning and Analytical ability
3. Engineering Mathematics and Numerical Analysis
4. General Principles of Design, Drawing, Importance of Safety
5. Standards and Quality practices in production, construction, maintenance and services
6. Basics of Energy and Environment: Conservation, environmental pollution and degradation, Climate Change, Environmental impact assessment
7. Basics of Project Management
8. Basics of Material Science and Engineering
9. Information and Communication Technologies (ICT) based tools and their applications in Engineering such as networking, e-governance and technology based education.
10. Ethics and values in Engineering profession.

**Note: The paper in General Studies and Engineering Aptitude will include Knowledge of relevant topics as may be expected from an engineering graduate, without special study. Questions from all the 10 topics mentioned above shall be set. Marks for each Topic may range from 5% to 15% of the total marks in the paper.**

### **Civil Engineering**

**Contents for syllabi of both the Papers together for Preliminary/Stage-I Examination (objective type Paper-II) and separately for Main/Stage-II Examination (Conventional type Paper-I and Paper – II).**

#### **PAPER – I**

##### **1. Building Materials:**

Stone, Lime, Glass, Plastics, Steel, FRP, Ceramics, Aluminum, Fly Ash, Basic Admixtures, Timber, Bricks and Aggregates: Classification, properties and selection criteria;

Cement: Types, Composition, Properties, Uses, Specifications and various Tests; Lime & Cement Mortars and Concrete: Properties and various Tests; Design of Concrete Mixes: Proportioning of aggregates and methods of mix design.

**2. Solid Mechanics:**

Elastic constants, Stress, plane stress, Strains, plane strain, Mohr's circle of stress and strain, Elastic theories of failure, Principal Stresses, Bending, Shear and Torsion.

**3. Structural Analysis:**

Basics of strength of materials, Types of stresses and strains, Bending moments and shear force, concept of bending and shear stresses; Analysis of determinate and indeterminate structures; Trusses, beams, plane frames; Rolling loads, Influence Lines, Unit load method & other methods; Free and Forced vibrations of single degree and multi degree freedom system; Suspended Cables; Concepts and use of Computer Aided Design.

**4. Design of Steel Structures:**

Principles of Working Stress methods, Design of tension and compression members, Design of beams and beam column connections, built-up sections, Girders, Industrial roofs, Principles of Ultimate load design.

**5. Design of Concrete and Masonry structures:**

Limit state design for bending, shear, axial compression and combined forces; Design of beams, Slabs, Lintels, Foundations, Retaining walls, Tanks, Staircases; Principles of pre-stressed concrete design including materials and methods; Earthquake resistant design of structures; Design of Masonry Structure.

**6. Construction Practice, Planning and Management:**

Construction - Planning, Equipment, Site investigation and Management including Estimation with latest project management tools and network analysis for different Types of works; Analysis of Rates of various types of works; Tendering Process and Contract Management, Quality Control, Productivity, Operation Cost; Land acquisition; Labour safety and welfare.

**PAPER – II****1. Flow of Fluids, Hydraulic Machines and Hydro Power:****(a) Fluid Mechanics, Open Channel Flow, Pipe Flow:**

Fluid properties; Dimensional Analysis and Modeling; Fluid dynamics including flow kinematics and measurements; Flow net; Viscosity, Boundary layer and control, Drag, Lift, Principles in open channel flow, Flow controls. Hydraulic jump; Surges; Pipe networks.

**(b) Hydraulic Machines and Hydro power -**

Various pumps, Air vessels, Hydraulic turbines – types, classifications & performance parameters; Power house – classification and layout, storage, pondage, control of supply.

**2. Hydrology and Water Resources Engineering:**

Hydrological cycle, Ground water hydrology, Well hydrology and related data analysis; Streams and their gauging; River morphology; Flood, drought and their management; Capacity of Reservoirs.

Water Resources Engineering : Multipurpose uses of Water, River basins and their potential; Irrigation systems, water demand assessment; Resources - storages and their yields; Water logging, canal and drainage design, Gravity dams, falls, weirs, Energy dissipaters, barrage Distribution works, Cross drainage works and head-works and their design; Concepts in canal design, construction & maintenance; River training, measurement and analysis of rainfall.

**3. Environmental Engineering:****(a) Water Supply Engineering:**

Sources, Estimation, quality standards and testing of water and their treatment; Rural, Institutional and industrial water supply; Physical, chemical and biological characteristics and sources of water, Pollutants in water and its effects, Estimation of water demand; Drinking water Standards, Water Treatment Plants, Water distribution networks.

**(b) Waste Water Engineering:**

Planning & design of domestic waste water, sewage collection and disposal; Plumbing Systems. Components and layout of sewerage system; Planning & design of Domestic Waste-water disposal system; Sludge management including treatment, disposal and re-use of treated effluents; Industrial waste waters and Effluent Treatment Plants including institutional and industrial sewage management.

**(c) Solid Waste Management:**

Sources & classification of solid wastes along with planning & design of its management system; Disposal system, Beneficial aspects of wastes and Utilization by Civil Engineers.

**(d) Air, Noise pollution and Ecology:**

Concepts & general methodology.

**4. Geo-technical Engineering and Foundation Engineering :**

- (a) **Geo-technical Engineering:** Soil exploration - planning & methods, Properties of soil, classification, various tests and inter-relationships; Permeability & Seepage, Compressibility, consolidation and Shearing resistance, Earth pressure theories and stress distribution in soil; Properties and uses of geo-synthetics.
- (b) **Foundation Engineering:** Types of foundations & selection criteria, bearing capacity, settlement analysis, design and testing of shallow & deep foundations; Slope stability analysis, Earthen embankments, Dams and Earth retaining structures: types, analysis and design, Principles of ground modifications.

**5. Surveying and Geology:**

- (a) **Surveying:** Classification of surveys, various methodologies, instruments & analysis of measurement of distances, elevation and directions; Field astronomy, Global Positioning System; Map preparation; Photogrammetry; Remote sensing concepts; Survey Layout for culverts, canals, bridges, road/railway alignment and buildings, Setting out of Curves.
- (b) **Geology:** Basic knowledge of Engineering geology & its application in projects.

**6. Transportation Engineering:**

**Highways** - Planning & construction methodology, Alignment and geometric design; Traffic Surveys and Controls; Principles of Flexible and Rigid pavements design.

**Tunneling** - Alignment, methods of construction, disposal of muck, drainage, lighting and ventilation.

**Railways Systems** – Terminology, Planning, designs and maintenance practices; track modernization.

**Harbours** – Terminology, layouts and planning.

**Airports** – Layout, planning & design.

**Mechanical Engineering**

**Contents for syllabi of both the Papers together for Preliminary/Stage-I Examination (objective type Paper-II) and separately for Main/Stage-II Examination (Conventional type Paper-I and Paper – II).**

**PAPER – I****1. Fluid Mechanics:**

Basic Concepts and Properties of Fluids, Manometry, Fluid Statics, Buoyancy, Equations of Motion, Bernoulli's equation and applications, Viscous flow of incompressible fluids, Laminar and Turbulent flows, Flow through pipes and head losses in pipes.

**2. Thermodynamics and Heat transfer:**

Thermodynamic systems and processes; properties of pure substance; Zeroth, First and Second Laws of Thermodynamics; Entropy, Irreversibility and availability; analysis of thermodynamic cycles related to energy conversion: Rankine, Otto, Diesel and Dual Cycles; ideal and real gases; compressibility factor; Gas mixtures.

Modes of heat transfer, Steady and unsteady heat conduction, Thermal resistance, Fins, Free and forced convection, Correlations for convective heat transfer, Radiative heat transfer – Radiation heat transfer co-efficient; boiling and condensation, Heat exchanger performance analysis.

**3. IC Engines, Refrigeration and Air conditioning:**

SI and CI Engines, Engine Systems and Components, Performance characteristics and testing of IC Engines; Fuels; Emissions and Emission Control. Vapour compression refrigeration, Refrigerants and Working cycles, Compressors, Condensers, Evaporators and Expansion devices, Other types of refrigeration systems like Vapour Absorption, Vapour jet, thermo electric and Vortex tube refrigeration. Psychometric properties and processes, Comfort chart, Comfort and industrial air conditioning, Load calculations and Heat pumps.

**4. Turbo Machinery:**

Reciprocating and Rotary pumps, Pelton wheel, Kaplan and Francis Turbines, velocity diagrams, Impulse and Reaction principles, Steam and Gas Turbines, Theory of Jet Propulsion – Pulse jet and Ram Jet Engines, Reciprocating and Rotary Compressors – Theory and Applications

**5. Power Plant Engineering:**

Rankine and Brayton cycles with regeneration and reheat, Fuels and their properties, Flue gas analysis, Boilers, steam turbines and other power plant components like condensers, air ejectors, electrostatic precipitators and cooling towers – their theory and design, types and applications;

**6. Renewable Sources of Energy:**

Solar Radiation, Solar Thermal Energy collection - Flat Plate and focusing collectors their materials and performance. Solar Thermal Energy Storage, Applications – heating, cooling and Power Generation; Solar Photovoltaic Conversion; Harnessing of Wind Energy, Bio-mass and Tidal Energy – Methods and Applications, Working principles of Fuel Cells.

**PAPER – II****7. Engineering Mechanics:**

Analysis of System of Forces, Friction, Centroid and Centre of Gravity, Dynamics; Stresses and Strains-Compound Stresses and Strains, Bending Moment and Shear Force Diagrams, Theory of Bending Stresses- Slope and deflection-Torsion, Thin and thick Cylinders, Spheres.

**8. Engineering Materials:**

Basic Crystallography, Alloys and Phase diagrams, Heat Treatment, Ferrous and Non Ferrous Metals, Non metallic materials, Basics of Nano-materials, Mechanical Properties and Testing, Corrosion prevention and control

**9. Mechanisms and Machines:**

Types of Kinematics Pair, Mobility, Inversions, Kinematic Analysis, Velocity and Acceleration Analysis of Planar Mechanisms, CAMs with uniform acceleration and retardation, cycloidal motion, oscillating followers; Vibrations –Free and forced vibration of undamped and damped SDOF systems, Transmissibility Ratio, Vibration Isolation, Critical Speed of Shafts. Gears – Geometry of tooth profiles, Law of gearing, Involute profile, Interference, Helical, Spiral and Worm Gears, Gear Trains- Simple, compound and Epicyclic; Dynamic Analysis – Slider – crank mechanisms, turning moment computations, balancing of Revolving & Reciprocating masses, Gyroscopes –Effect of Gyroscopic couple on automobiles, ships and aircrafts, Governors.

**10. Design of Machine Elements:**

Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; principles of the design of machine elements such as riveted, welded and bolted joints. Shafts, Spur gears, rolling and sliding contact bearings, Brakes and clutches, flywheels.

**11. Manufacturing ,Industrial and Maintenance Engineering:**

Metal casting-Metal forming, Metal Joining, Machining and machine tool operations, Limits, fits and tolerances, Metrology and inspection, computer Integrated manufacturing, FMS, Production planning and Control, Inventory control and operations research - CPM-PERT. Failure concepts and characteristics-Reliability, Failure analysis, Machine Vibration, Data acquisition, Fault Detection, Vibration Monitoring, Field Balancing of Rotors, Noise Monitoring, Wear and Debris Analysis, Signature Analysis, NDT Techniques in Condition Monitoring.

**12. Mechatronics and Robotics:**

Microprocessors and Microcontrollers: Architecture, programming, I/O, Computer interfacing, Programmable logic controller. Sensors and actuators, Piezoelectric accelerometer, Hall effect sensor, Optical Encoder, Resolver, Inductosyn, Pneumatic and Hydraulic actuators, stepper motor, Control Systems- Mathematical modeling of Physical systems, control signals, controllability and observability. Robotics, Robot Classification, Robot Specification, notation; Direct and Inverse Kinematics; Homogeneous Coordinates and Arm Equation of four Axis SCARA Robot.

**Electrical Engineering**

**Contents for syllabi of both the Papers together for Preliminary/Stage-I Examination (objective type Paper-II) and separately for Main/Stage-II Examination (Conventional type Paper-I and Paper – II).**

**PAPER – I****1. Engineering Mathematics**

Matrix theory, Eigen values & Eigen vectors, system of linear equations, Numerical methods for solution of non-linear algebraic equations and differential equations, integral calculus, partial derivatives, maxima and minima, Line, Surface and Volume Integrals. Fourier series, linear, non-linear and partial differential equations, initial and boundary value problems, complex variables, Taylor's and Laurent's series, residue theorem, probability and statistics fundamentals, Sampling theorem, random variables, Normal and Poisson distributions, correlation and regression analysis.

**2. Electrical Materials**

Electrical Engineering Materials, crystal structures and defects, ceramic materials, insulating materials, magnetic materials – basics, properties and applications; ferrites, ferro-magnetic materials and components; basics of solid state physics, conductors; Photo-conductivity; Basics of Nano materials and Superconductors.

**3. Electric Circuits and Fields**

Circuit elements, network graph, KCL, KVL, Node and Mesh analysis, ideal current and voltage sources,

Thevenin's, Norton's, Superposition and Maximum Power Transfer theorems, transient response of DC and AC networks, Sinusoidal steady state analysis, basic filter concepts, two-port networks, three phase circuits, Magnetically coupled circuits, Gauss Theorem, electric field and potential due to point, line, plane and spherical charge distributions, Ampere's and Biot-Savart's laws; inductance, dielectrics, capacitance; Maxwell's equations.

#### **4. Electrical and Electronic Measurements:**

Principles of measurement, accuracy, precision and standards; Bridges and potentiometers; moving coil, moving iron, dynamometer and induction type instruments, measurement of voltage, current, power, energy and power factor, instrument transformers, digital voltmeters and multi-meters, phase, time and frequency measurement, Q-meters, oscilloscopes, potentiometric recorders, error analysis, Basics of sensors, Transducers, basics of data acquisition systems

#### **5. Computer Fundamentals:**

Number systems, Boolean algebra, arithmetic functions, Basic Architecture, Central Processing Unit, I/O and Memory Organisation; peripheral devices, data representation and programming, basics of Operating system and networking, virtual memory, file systems; Elements of programming languages, typical examples.

#### **6. Basic Electronics Engineering:**

Basics of Semiconductor diodes and transistors and characteristics, Junction and field effect transistors (BJT, FET and MOSFETS), different types of transistor amplifiers, equivalent circuits and frequency response; oscillators and other circuits, feedback amplifiers.

### **PAPER – II**

#### **1. Analog and Digital Electronics:**

Operational amplifiers – characteristics and applications, combinational and sequential logic circuits, multiplexers, multi-vibrators, sample and hold circuits, A/D and D/A converters, basics of filter circuits and applications, simple active filters; Microprocessor basics- interfaces and applications, basics of linear integrated circuits; Analog communication basics, Modulation and de-modulation, noise and bandwidth, transmitters and receivers, signal to noise ratio, digital communication basics, sampling, quantizing, coding, frequency and time domain multiplexing, power line carrier communication systems.

#### **2. Systems and Signal Processing :**

Representation of continuous and discrete-time signals, shifting and scaling operations, linear, time-invariant and causal systems, Fourier series representation of continuous periodic signals, sampling theorem, Fourier and Laplace transforms, Z transforms, Discrete Fourier transform, FFT, linear convolution, discrete cosine transform, FIR filter, IIR filter, bilinear transformation.

#### **3. Control Systems:**

Principles of feedback, transfer function, block diagrams and signal flow graphs, steady-state errors, transforms and their applications; Routh-hurwitz criterion, Nyquist techniques, Bode plots, root loci, lag, lead and lead-lag compensation, stability analysis, transient and frequency response analysis, state space model, state transition matrix, controllability and observability, linear state variable feedback, PID and industrial controllers.

#### **4. Electrical Machines :**

Single phase transformers, three phase transformers - connections, parallel operation, auto-transformer, energy conversion principles, DC machines - types, windings, generator characteristics, armature reaction and commutation, starting and speed control of motors, Induction motors - principles, types, performance characteristics, starting and speed control, Synchronous machines - performance, regulation, parallel operation of generators, motor starting, characteristics and applications, servo and stepper motors.

#### **5. Power Systems :**

Basic power generation concepts, steam, gas and water turbines, transmission line models and performance, cable performance, insulation, corona and radio interference, power factor correction, symmetrical components, fault analysis, principles of protection systems, basics of solid state relays and digital protection; Circuit breakers, Radial and ring-main distribution systems, Matrix representation of power systems, load flow analysis, voltage control and economic operation, System stability concepts, Swing curves and equal area criterion. HVDC transmission and FACTS concepts, Concepts of power system dynamics, distributed generation, solar and wind power, smart grid concepts, environmental implications, fundamentals of power economics.

#### **6. Power Electronics and Drives :**

Semiconductor power diodes, transistors, thyristors, triacs, GTOs, MOSFETs and IGBTs - static characteristics and principles of operation, triggering circuits, phase control rectifiers, bridge converters - fully controlled and half controlled, principles of choppers and inverters, basis concepts of adjustable speed DC and AC drives, DC-DC switched mode converters, DC-AC switched mode converters, resonant converters, high frequency inductors and transformers, power supplies.



## Electronics & Telecommunication Engineering

**Contents for syllabi of both the Papers together for Preliminary/Stage-I Examination (objective type Paper-II) and separately for Main/Stage-II Examination (Conventional type Paper-I and Paper – II).**

### PAPER – I

#### 1. Basic Electronics Engineering:

Basics of semiconductors; Diode/Transistor basics and characteristics; Diodes for different uses; Junction & Field Effect Transistors (BJTs, JFETs, MOSFETs); Transistor amplifiers of different types, oscillators and other circuits; Basics of Integrated Circuits (ICs); Bipolar, MOS and CMOS ICs; Basics of linear ICs, operational amplifiers and their applications-linear/non-linear; Optical sources/detectors; Basics of Opto electronics and its applications.

#### 2. Basic Electrical Engineering:

DC circuits-Ohm's & Kirchoff's laws, mesh and nodal analysis, circuit theorems; Electro-magnetism, Faraday's & Lenz's laws, induced EMF and its uses; Single-phase AC circuits; Transformers, efficiency; Basics-DC machines, induction machines, and synchronous machines; Electrical power sources- basics: hydroelectric, thermal, nuclear, wind, solar; Basics of batteries and their uses.

#### 3. Materials Science:

Electrical Engineering materials; Crystal structure & defects; Ceramic materials-structures, composites, processing and uses; Insulating laminates for electronics, structures, properties and uses; Magnetic materials, basics, classification, ferrites, ferro/para-magnetic materials and components; Nano materials-basics, preparation, purification, sintering, nano particles and uses; Nano-optical/magnetic/electronic materials and uses; Superconductivity, uses.

#### 4. Electronic Measurements and Instrumentation:

Principles of measurement, accuracy, precision and standards; Analog and Digital systems for measurement, measuring instruments for different applications; Static/dynamic characteristics of measurement systems, errors, statistical analysis and curve fitting; Measurement systems for non-electrical quantities; Basics of telemetry; Different types of transducers and displays; Data acquisition system basics.

#### 5. Network Theory:

Network graphs & matrices; Wye-Delta transformation; Linear constant coefficient differential equations- time domain analysis of RLC circuits;

Solution of network equations using Laplace transforms- frequency domain analysis of RLC circuits; 2-port network parameters-driving point & transfer functions; State equations for networks; Steady state sinusoidal analysis.

#### 6. Analog and Digital Circuits:

Small signal equivalent circuits of diodes, BJTs and FETs; Diode circuits for different uses; Biasing & stability of BJT & JFET amplifier circuits; Analysis/design of amplifier- single/multi-stage; Feedback & uses; Active filters, timers, multipliers, wave shaping, A/D-D/A converters; Boolean Algebra & uses; Logic gates, Digital IC families, Combinatorial/sequential circuits; Basics of multiplexers, counters/registers/ memories /microprocessors, design & applications.

### PAPER – II

#### 1. Analog and Digital Communication Systems:

Random signals, noise, probability theory, information theory; Analog versus digital communication & applications: Systems- AM, FM, transmitters/receivers, theory/practice/ standards, SNR comparison; Digital communication basics: Sampling, quantizing, coding, PCM, DPCM, multiplexing-audio/video; Digital modulation: ASK, FSK, PSK; Multiple access: TDMA, FDMA, CDMA; Optical communication: fibre optics, theory, practice/standards.

#### 2. Control Systems:

Classification of signals and systems; Application of signal and system theory; System realization; Transforms & their applications; Signal flow graphs, Routh-Hurwitz criteria, root loci, Nyquist/Bode plots; Feedback systems-open & close loop types, stability analysis, steady state, transient and frequency response analysis; Design of control systems, compensators, elements of lead/lag compensation, PID and industrial controllers.

#### 3. Computer Organization and Architecture:

Basic architecture, CPU, I/O organisation, memory organisation, peripheral devices, trends; Hardware /software issues; Data representation & Programming; Operating systems-basics, processes, characteristics, applications; Memory management, virtual memory, file systems, protection & security; Data bases, different types, characteristics and design; Transactions and concurrency control; Elements of programming languages, typical examples.

**4. Electro Magnetics:**

Elements of vector calculus, Maxwell's equations-basic concepts; Gauss', Stokes' theorems; Wave propagation through different media; Transmission Lines-different types, basics, Smith's chart, impedance matching/transformation, S-parameters, pulse excitation, uses; Waveguides-basics, rectangular types, modes, cut-off frequency, dispersion, dielectric types; Antennas-radiation pattern, monopoles/dipoles, gain, arrays-active/passive, theory, uses.

**5. Advanced Electronics Topics:**

VLSI technology: Processing, lithography, interconnects, packaging, testing; VLSI design: Principles, MUX/ROM/PLA-based design, Moore & Mealy circuit design; Pipeline concepts & functions; Design for testability, examples; DSP: Discrete time signals/systems, uses; Digital filters: FIR/IIR types, design, speech/audio/radar signal processing uses; Microprocessors & microcontrollers, basics, interrupts, DMA, instruction sets, interfacing; Controllers & uses; Embedded systems.

**6. Advanced Communication Topics:**

Communication networks: Principles /practices /technologies /uses /OSI model/security; Basic packet multiplexed streams/scheduling; Cellular networks, types, analysis, protocols (TCP/TCPIP); Microwave & satellite communication: Terrestrial/space type LOS systems, block schematics link calculations, system design; Communication satellites, orbits, characteristics, systems, uses; Fibre-optic communication systems, block schematics, link calculations, system design.

**APPENDIX II****REGULATIONS RELATING TO THE PHYSICAL EXAMINATION OF CANDIDATES**

These regulations are published for the convenience of candidates and in order to enable them to ascertain the probability of their coming up to the required physical standard, the regulations are also intended to provide guidelines to the medical examiners and a candidate who does not satisfy the minimum requirements prescribed in the regulations cannot be declared Fit by the medical examiners. However, while holding that a candidate is not fit according to the norms laid down in these regulations, it would be permissible for a Medical Board to recommend to the Government of India for reasons specifically recorded in writing that he may be admitted to service without disadvantage to Government.

All kinds of notices and information relating to the medical examination of the Transgender candidates including the medical parameters for Transgender candidates for various service(s) would be posted on the dedicated web page of the Ministry of Railways before the commencement of the medical examination of Engineering Services Examination-2021 after due consultation with all the concerned nodal authorities and all the Cadre Controlling Authorities of the participating service (s) in Engineering Services Examination 2021.

**Note :** The Medical Board while conducting medical examination of the candidates who have applied against the posts reserved for physically handicapped category will keep in view the relevant provisions of the Rights of Persons with Disabilities Act, 2016 wherein the extent of permissible disability has been defined.

2. (a) The Government of India reserve to themselves absolute discretion to reject or accept any candidate after considering the report of the Medical Board.
- (b) To be passed as fit for appointment, a candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of the duties on his/her appointment.
3. (a) In the matter of the correlation of age, height and chest girth of candidates of Indian (including Anglo-Indian) race, it is left to the Medical Board to use whether correlation figures are considered most suitable as a guide in the examination of the candidates, if there be any disproportion with regard to height, weight and chest girth, the candidates should be Hospitalised for investigation and X-ray of the chest taken before the candidate is declared fit or not by the Board.
- (b) However, for certain Services the Minimum standards for height without which candidate cannot be accepted are as follows :—

Name of ServicesHeight

Central Engineering  
Service Group A, CES (Roads),  
Central Electrical & Mechanical  
Engineering Service Group A in  
the C.P.W.D. Military Engineer  
Services (IDSE) CWES, BRES. Gr.  
'A' in Border Roads Organisation, Indian Skill Development Service  
(ISDS).

- |     |                       |        |
|-----|-----------------------|--------|
| (a) | For Male Candidates   | 152 cm |
| (b) | For Female Candidates | 150 cm |

The minimum height prescribed is relaxable in case of candidate belonging to Scheduled Tribes and to races such as Gorkhas, Garhwalis, Assamese, Nagaland Tribes, etc. whose average height is distinctly lower.

(c) For all services Chest expansion should be minimum 5 cm. Absolute values of measurement during inspiration and expiration should not be adhered to for disqualification.

4. The candidate's height will be measured as follows:—

He/ She will remove his/ her shoes and be placed against the standard with his/ her feet together and the weight thrown on the heels and not on the toes or other sides of the feet, he/ she will stand erect without rigidly and with the heels, calves, buttocks and shoulders touching the standard, the chin will be repressed to bring the vertex of the head level under the horizontal bar and the height will be recorded in centimetres and parts of a centimetres to halves.

5. The candidate's chest will be measured as follows :—

He/ She will be made to stand erect with his feet together and to raise his/ her arms over his/ her head. The tape will be so adjusted round the chest that its upper edge touches the interior angles of the shoulders blades behind and lies in the same horizontal plane when the tape is taken round the chest. The arms will then be lowered to hang loosely by the side and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The candidate will then be directed to take a deep inspiration several times and the maximum expansion of the chest will be carefully noted and the minimum and maximum will then be recorded in centimetres, 83—89, 86—93.5 etc. In recording the measurements fraction of less than half a centimetre should not be noted.

**N.B.**—The height and chest of the candidate should be measured twice before coming to a final decision.

6. The candidate will also be weighted and his weight recorded in kilograms—fraction of a Kilogram should not be noted.

7. The candidate's eye-sight will be tested in accordance with the following rules. The result of each test will be recorded:-

- (i) **General.**—The candidate's eyes will be subjected to a general examination directed to the detection of any disease or abnormality. The candidate will be rejected if he/ she suffers from any morbid conditions of eye, eyelids or contiguous structure of such a sort as to render or are likely at future date to render him/ her unfit for service.
- (ii) **Visual Acuity.**—The examination for determining the acuteness of vision includes two tests—one for distant the other for near vision. Each eye will be examined separately.

There shall be no limit for maximum naked eye vision but the naked eye vision of the candidates shall however, be recorded by the Medical Board or other medical authority in every case as it will furnish the basic information in regard to the conditions of the eye.

The standards for distant and near vision with or without glasses shall be as follows :—

Service	Distant Vision		Near Better Eye (corrected Vision)	Vision Worse Eye
	Better Eye (corrected Vision)	Worse Eye		
(1)	(2)	(3)	(4)	(5)

#### A. Technical

1 .Central Engi neering Service Group A, Central Electrical and Mechanical Engineering Ser- vice Group A Central Water Engineering Service Group A, Central	6/6  6/9	6/12 o r 6/9	J/I	J/II
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Power Engineer-  
ing Service  
Group A and Group 'B'  
Central Engineering  
Service (Roads) Group 'A',

Indian Radio Regulatory Service, Group 'A'

Indian Telecommunication Service Gr. 'A', J.T.O Gr. B, Assistant Executive Engineer in P&T Building works (Gr. 'A') Service

Indian Naval Armament Service, Indian Naval Material Management Service, Indian Ordnance Factories Service Group A. Survey of India Gr 'A' Service, Defence Aeronautical Quality Assurance Service, Indian Skill Development Service.

2. Assistant Execu-  
tive Engineer  
(Group 'A') in the  
Corps of EME  
Military Engineer  
Service Group 'A'.

6/66/18  
or  
6/96/9

J/I

J/II

(IDSE), AEE(QS&C) in MES Surveyor  
Cadre, BRES Gr. 'A' in Border Roads  
Organisation.

### B. Non-Technical

3. Geological Survey of. 6/9 6/12 J/I J/II  
India Gr 'A' Service

#### NOTE (1) :

- (a) In respect of the Technical Service mentioned at A above, the total amount of myopia (including the cylinder and spherical) shall not exceed 6D. Total amount of Hypermetropia (including the cylinder) shall not exceed 4D. For Myopia more than 6 dioptres (including cylinder and spherical) and Hypermetropia more than 4 dioptres candidate is unfit for all technical services. However, after special Medical Board, candidate may be considered fit for non-technical services, if no degenerative changes involving macular region are found by the Myopia Board.

Provided that in case a candidate in respect of the Services classified as "Technical" is found unfit on grounds of high myopia the matter shall be referred to a special boards of three Ophthalmologists to declare whether this myopia is Pathological or not. In case it is not pathological the candidate shall be declared fit for non-technical services provided he/ she fulfills the visual requirements otherwise.

- (b) In every case of myopia fundus examination should be carried out and the results recorded. In the event of any pathological condition being present which is likely to be progressive and affect the efficiency of the candidate, he/ she shall be declared unfit.
- (c) Intra Ocular Lenses (IOL) and Implanted Contact Lenses(ICL) shall be considered as disqualification for all categories. However, Radial Keratotomy/Laser Correction (Lasik) may be permitted for all categories if on Pachymetry, remaining bed of cornea should not be less than 425 micron (including flap) and surgery should be at least 1 year old subject to examination of retina by Special Ophthalmic Board(SOB).

**NOTE (2) :** The testing of colour vision shall be essential in respect of the Technical Services mentioned at A above.

Colour perception should be graded into higher and lower grade depending upon the size of aperture in the lantern as described in the table below :—

Grade	Higher Grade of colour perception	Lower Grade of colour Perception
1 .Distance between The lamp and the candidate	16 feet	16 Feet
2 .Size of aperture	1.3 mm	13 Mm
3 .Time of exposure	5 seconds	5 seconds

For the Services connected with the safety of the public, Higher grade of colour vision is essential but for others lower grade of colour vision should be considered sufficient.

The categories of Services/posts which require higher or lower grade colour perception are as indicated below :—

Technical Services or posts requiring higher grade colour Perception :—

- (i) Indian Defence Service of Engineer (IDSE).
- (ii) Central Engineering Service (Roads).
- (iii) Central Power Engineering Service. (Gr. 'A' and Gr. 'B')
- (iv) Assistant Executive Engineer (Group 'A') in the Corps of EME.
- (v) BRES Group 'A' in Border Roads Organisation.
- (vi) Survey of India, Group 'A' Service.
- (vii) Assistant Executive Engineer(QS&C) in Military Engineer Service(MES) Cadre.

Technical Services or posts requiring lower grade colour perception :—

- (i) Central Engineering Service.
- (ii) Central Electrical and Mechanical Engineering Service.
- (iii) Indian Naval Armament Service.
- (iv) Indian Naval Material Management Service
- (v) Indian Ordnance Factory Service.
- (vi) Central Water Engineering Service.
- (vii) Indian Radio Regulatory Service Group 'A'.
- (viii) Geological Survey of India Gr 'A' Service.
- (ix) Asstt. Executive Engineer in P&T Building Works Gr 'A' Service.
- (x) Defence Aeronautical Quality Assurance Service(DAQAS).
- (xi) Indian Skill Development Service.

Services for which colour perception is not required:-

- (i) Indian Telecommunication Service Group 'A'.
- (ii) Junior Telecom Officer (General Central Service Group 'B' Gazetted, Non-ministrial)

Satisfactory colour vision constitutes, recognition with ease and without hesitation of Red, Green and Yellow colours. The use of Ishihara's plates, shown in good light and a suitable lantern like Edrige Green's shall be considered quite dependable for resting colour vision. Both the Ishihara's plates and Edrige Green's lantern shall be used for testing colour vision of candidates for appointment to the technical services.

**NOTE (3): Field of vision**—The field of vision shall be tested in respect of all services by the confrontation method. Where such test gives unsatisfactory or doubtful results the field of vision should be determined on the perimeter.

**NOTE (4) : For Night Blindness**—Night blindness need not be tested as a routine but only in special cases. No standard test for the testing of night blindness or dark adaption is prescribed. The Medical Board should be given the discretion to improvise such rough test e.g. recording of visual acuity with reduced illumination or by making the candidate recognise various objects in a darkened room after he has been therefore 20 to 30 minutes. Candidates own statements should not always be relied upon but they should be given due consideration.

**NOTE (5): For Central Engineering Services/CES (Roads)**—Candidates may be required to pass the colour vision test and undergo test for night blindness when considered necessary by the Medical Board for Survey of India Group 'A' service the candidate may be required to pass a 'stereoscopic fusion' test.

**NOTE (6): Ocular conditions, other than visual acuity :—**

- (a) Any organic disease or a progressive refractive error, which is likely to result in lowering the visual acuity, should be considered as a disqualification.
- (b) Squint with absent binocularity is unfit for all technical services. May be considered fit only for non-technical services. Squint with present binocularity is fit for all services.
- (c) Candidates with one eye are unfit for all technical services and fit only for non-technical services subject to other parameters being in the normal range.

**NOTE (7) :— Contact lenses**—During the medical examination of a candidate, the use of contact lenses is not to be allowed.

**NOTE (8) :—** It is necessary that when considering eye test the illumination of the type letters for distant vision should have an illumination of 15 foot candles.

**NOTE (9) :—**It shall be open to Government to relax anyone of the condition in favour of any candidate for special reasons.

## 8. Blood Pressure

The Board will use its discretion regarding Blood Pressure. A rough method of calculating normal, maximum, systolic

pressure is as follows :—

- (i) With young subjects 15—25 years of age the average is about 100 plus age.
- (ii) With subject over 25 years of age general rule of 110 plus half the age seems quite satisfactory.

**N.B.—1.** As a general rule any systolic prescription 140 mm and diastolic over 90 mm should be regarded as suspicious and the candidate should be hospitalised by the Board before giving their final opinion regarding the candidate's fitness or otherwise. The hospitalisation report should indicate whether the rise in blood pressure is of a transient nature due to excitement etc. or whether it is due to any organic disease. In all such cases X-ray and electro cardiographic examinations of heart and blood urea clearance test should also be done as routine. Candidate with hypertension (if diagnosed by the Medical Board) should be declared permanent unfit.

## 2. Method of taking Blood Pressure (II)

The mercury manometer type of instrument should be used as a rule. The measurement should not be taken within fifteen minutes of any exercise of excitement. Provided the patient and particularly his/ her arm is relaxed, he/ she may be either lying or sitting. The arm is supported comfortably at the patient's side in a more or less horizontal position. The arm should be free from clothes to the shoulder. The cuff completely deflated, should be applied with the middle of the rubber over the inner side of the arm and its lower edge an inch or two above the bend of the elbow. The following turns of cloth bandage should spread evenly over the bag to avoid bulging during inflation.

The brachial artery is located by palpitation at the bend of the elbow and the stethoscope is then applied lightly and centrally over it below, but not in contact with the cuff. The cuff is inflated to above 200 mm. Hg. and then slowly deflated. The level at which the column stand when soft successive sounds are heard represents the Systolic Pressure. When more air is allowed to escape the sounds will be heard to increase in intensity. The level at which the column well heard clear sounds change to soft muffled fading sounds represents the diastolic pressure. The measurements should be taken in a fairly brief period of time as prolonged pressure of the cuff is irritating to the patient and will vitiate the readings. Re-checking if necessary, should be done only a few minutes after complete deflation of the cuff. (Sometimes as the cuff is deflated sounds are heard at a certain level they may disappear as pressure, falls and reappear at a still lower level. This "Silent Gap" may cause error in reading.)

## 9. Diabetes Mellitus

The urine (passed in the presence of the examiner) should be examined and the results recorded. When a Medical Board finds sugar present in a candidate's urine by the usual chemical tests the Board will proceed with the examination with all its other aspects and will also specially note any signs or symptoms suggestive of diabetes. If except for the Glycosuria the Board finds the candidates conforms to the standards of medical fitness required they may pass the candidate fit subject to the Glycosuria 'being non-diabetic' and the Board will refer the case to a specified specialist in Medicine who has hospital and laboratory facilities at his disposal. The Medical specialist will carry out whatever examinations, clinical and laboratory he considers necessary including a standard blood sugar tolerance test and will submit his opinion to the Medical Board upon which the Medical Board will use its final opinion fit or unfit. The candidates will not be required to appear in person before the Board on the second occasion. To exclude the effects of medication it may be necessary to retain candidate for several days in hospital under strict supervision. Candidates with Diabetes Mellitus (if diagnosed by the Medical Board) should be declared permanent unfit.

10. A women candidate who as a result of test is found to be pregnant should be declared temporary unfit until the confinement is over. She should be re-examined for a fitness certificate six weeks after the date of confinement subject to the production of a medical certificate of fitness from a registered medical practitioner.

11. The following additional points should be observed:—

- (a) that the candidate's hearing in each ear is good and that there is no sign of disease of the ear. In case it is defective the candidate should be got examined by the ear specialist provided that if the defect in hearing is remediable by operation or by use of a hearing aid a candidate cannot be declared unfit on the account provided he/ she has no progressive disease in the ear. This provision is not applicable in the case of Military Engineer Services, Central Engineering Service Group A, Central Engineering Service (Roads), Central Electrical Engineering Service Group 'A' and Border Roads Engineering Service Group 'A'. The following are the guidelines for the medical examining authority in this regard :—

1	2	3
(1) Marked for total deafness in one ears other being normal.		Fit for non-technical job if the deafness is up to 30 decibles in higher frequency.
(2) Perceptive deafness in both ears in which some improvement is possible by a hearing aid.		Fit in respect of both technical and non-technical jobs if the deafness is upon 30 decibles in speech frequencies of 1000 to 4000.
(3) Perforation of tympanic membrane of Central or marginal type.		(i) One ear normal other ear perforation of tympanic membrane present temporarily unfit. Under improved conditions of Ear Surgery a

- candidate with marginal or other Perforation in both ears should be given a chance by declaring him temporarily unfit.
- (ii) Since, all marginal/attic perforations are unsafe, they are temporarily unfit whether present in one or both ears. Post surgery patient can be made fit only if both ears have hearing of 30 decibles or better.
- (iii) Central perforation both ears – Temporarily unfit.
- (4) Ears with mastoid cavity sub-normal hearing on one side/on both sides. (i) Either ear normal hearing other ear, Mastoid cavity—Fit for both technical and non-technical jobs.  
(ii) Mastoid Cavity is temporarily unfit whether present in one or both ears. Post surgery, patient can be made fit only if both ears have hearing of 30 decibles or better.
- (5) Persistently discharging ear operated/un-operated. Temporarily Unfit for both technical and non-technical jobs.
- (6) Chronic inflamatory/allergic conditions of nose with or without bony deformities of nasal septum. (i) A decision will be taken as per circumstance of individual cases. If deviated nasal septum is present with Symptoms Temporarily Unfit.
- (7) Chronic inflamatory/condition of tonsils and/or Larynix. (i) Chronic inflamatory conditions of tonsils and/or Larynix- Fit.  
(ii) Hoarseness of voice of severe degree if present then temporarily Unfit.
- (8) Benign or locally malignant tumours of E.N.T. (i) Benign tumours also need treatment and this treatment has its own failure and complications, including death. Hence, all benign tumours are temporarily unfit and can only be fit after successful treatment/surgery.  
(ii) Malignant Tumours – Unfit
- (9) Otosclerosis. If the hearing is within 30 decibles after operation or with the help of hearing aid Fit.
- (10) Congenital defects of ear, nose or throat. (i) If non-interfering with functions Fit.  
(ii) Stuttering of severe degree-Unfit.
- (11) Nasal Poly Nasal Polyps also need treatment and this treatment has its own failure and complications. Hence, all Nasal Polyps are temporarily unfit and can only be made fit after successful treatment/surgery.
- (b) that his/her speech is without impediment;
- (c) that his/her teeth are in good order and he/she is provided with dentures where necessary for effective metication (well filled teeth) will be considered as sound;
- (d) that the chest is well formed and his chest expansion is sufficient and that his/ her heart and lungs are sound;
- (e) that there is no evidence of any abdominal diseases;
- (f) that he/ she is not raptured;
- (g) that he/ she does not suffer from hydrocele, varicose, veins or piles. To be declared 'Temporarily unfit' and fit only after successful surgery.
- (h) that his/ her limbs, hands and feet are well formed and developed and that there is free and perfect motion of all his joints. However, candidate may be considered fit for all services if condition is not degenerative and there are no associated secondary deformities
- (i) that he/ she does not suffer from any inverterate skin disease;
- (j) that there is no congenital malformation or defect;
- (k) that he/ she does not bear traces of acute chronic disease pointing to an impaired constitution;
- (l) that he/ she bears marks of efficient vaccination; and
- (m) that he/ she is free from communicable disease.
- (n) Grade-I Haemorrhoids should be declared 'Fit.
- (o) Agenesis or absence of both testes is permanent unfit. In case of single impalpable testes – it is impossible on routine examination to differentiate between agenesis of testes and impalpable undescended testes. Undescended testes is temporarily unfit till after its surgical removal or repositioning in a visible/normal position. Agenesis may be declared fit but the onus of proof that it is a case of agenesis and not undescended testes lies with the candidate.

- (p) All candidates having transplanted organs should be declared 'Unfit'.
- (q) All candidates with malignancies detected at the time of entry into service should be declared 'Unfit'.
- (r) Morbid obesity is a diseased state. It limits the ability of the persons to perform and is an independent risk factor for Index)various other diseases These candidates are 'Temporarily Unfit' and can become 'fit' if they achieve BMI(Body Mass Index)<35 without resorting to surgical or interventional therapies. This is because, such therapies have several long term complications of their own. Temporarily unfit in BMI>35. May be declared 'Fit' if BMI improves to <35 within stipulated time for appeal. Permanently unfit if BMI corrected by any surgery or interventional procedure.
- (s) History and evidence of organ donation is not in itself a reason to declare a candidate unfit if he/she is in otherwise normal state of health.

12. Radiographic examination of the chest for detecting any abnormality of the heart and lungs, which may not be apparent by ordinary physical examination will be restricted to only such candidates who are declared finally successful at the concerned Engineering Services Examination.

The decision of the Chairman of the Central Standing Medical Board (conducting the medical examination of the concerned candidate) about the fitness of the candidate shall be final.

13. In case of doubt regarding health of a candidate the Chairman of the Medical Board may consult a suitable Hospital Specialist to decide the issue of fitness or unfitness of the candidate for Government Service e.g. if a candidate is suspected to be suffering from any mental defect or aberration; the Chairman of the Board may consult a Hospital Psychiatrist/Psychologist etc.

When any defect is found it must be noted in the Certificate and the medical examiner should state his opinion whether or not, it is likely to interfere with the efficient performance of the duties which will be required of the candidate.

14. The Candidates who desire to file an appeal against the decision of the Medical Board are required to deposit an appeal fee of Rs. 100 in such a manner as may be prescribed by the Government of India, Ministry of Railways (Railway Board) in this behalf. This fee will be refundable only to those candidates who are declared fit by the Appellate Medical Board whereas in the case of others it will be forfeited. Along with, appeal the candidates must, submit a medical certificate by a registered doctor specifically mentioning that he/ she is aware of the candidate having been declared unfit by a Medical Board. The medical fitness certificate submitted by a candidate is only a prerequisite for appealing against the findings of the First Medical Board. Candidates must have a copy of this certificate when, they present themselves before the Medical Board. The appeals should be submitted within 7 working days from the date of communication(Email) in which the decision of the first Medical Board is conveyed to the candidate; otherwise request for medical examination by an appellate Medical Board will not be entertained. The medical examination by the Appellate Medical Board will be arranged only a candidate's own cost. No travelling allowance or daily allowance will be admissible for the journeys performed in connection with the medical examination of the Appellate Medical Board. Necessary action to arrange medical examination by the Appellate Medical Board will be taken by the Ministry of Railways (Railway Board) on receipt of appeals accompanied by the prescribed fee within the stipulated time.

15. The decision of the Appellate Medical Board will be final and no appeal shall be against the same.

#### **MEDICAL BOARD'S REPORT**

The following intimation is made for the guidance of the Medical Examiner:

1. The standard of physical fitness to be adopted should make due allowance of the age and length of service, if any of the candidate concerned.

No person will be deemed qualified for admission to the Public Service who shall not satisfy the Government or the appointing authority as the case may be that he has no disease, constitutional affliction, or bodily infirmity, unfitting him or likely to unfit him for that service.

It should be understood that the question of fitness involves the future as well as the present and that one of the main objects of medical examination is to secure continuous effective service and in the case of candidates for permanent appointment to prevent early pension or payment in case of premature death. It is at the same time to be noted that the question is one of the likelihood of continuous effective service, and that rejection of a candidate need not be advised on account of the presence of a defect which in only a small proportion of cases is found to interfere with continuous effective service.

A lady doctor will be co-opted as member of the Medical Board whenever a woman candidate is to be examined.

The report of the Medical Board should be treated as confidential.

In case where a candidate is declared unfit for appointment in the Government service, the ground for rejection may be communicated to the candidate in broad terms without giving minute details regarding the defects pointed out by the Medical Board. Please note that detailed reasons for medical unfitness will not be put on public domain whereas the individual concerned will be informed the reasons. However, status of the medical examination as Fit/Unfit/Partially Unfit/Temporarily Unfit will be uploaded on the official website of Indian Railways viz.



[www.indianrailways.gov.in/railwayboard>News&Recruitment>Engineering Services updates](http://www.indianrailways.gov.in/railwayboard>News&Recruitment>Engineering Services updates).

In case where a Medical Board considers that a minor disability disqualifying a candidate for Government service can be cured by treatment (medical or surgical) a statement to that effect should be recorded by the Medical Board. There is no objection to a candidate being informed of the Board's opinion to this effect by appointing authority and when a cure has been effected it will be open to the authority concerned to ask for another Medical Board.

In the case of candidates who are to be declared "Temporarily Unfit" the period specified for re-examination should not ordinarily exceed six months at the maximum. On re-examination after the specified period these candidates should not be declared temporarily unfit for a further period but a final decision in regard to their fitness for appointment or otherwise should be given.

It may be noted that a candidate when suffering from a curable disease, can be declared temporarily unfit by the first Medical Board only. The Medical re-examination shall be deemed to be part of the 1st Medical Examination and candidates may, if they desire, appeal against its decision. The appellate Medical Board has to come to a final decision and state clearly whether a candidate is fit or unfit, a candidate cannot be declared temporarily unfit on the basis of the appellate medical examination.

### MEDICAL BOARD REPORT FORMAT

(To be filled in triplicate)

For ESE-2021

Roll No.....

.....

Engg Discp .....

Rank No. ....

.....

Medical At Central Hospital.....(Railway)

Photograph  
with Roll No.,  
Rank & discp.  
written on the  
back

(a) Candidate's statement and declaration.

The candidate must make the Statement required below in his/her own hand writing prior to his/her Medical Examination and must sign the declaration 'appended thereto'. Their attention is specially directed to the warning contained in the Para 08 below :—

1 Name in full (in block letters) : \_\_\_\_\_ Sex Male/ Female

2.(a) State your age and birth place

Age

Date of Birth

Place of Birth

.....

2. (b) Do you belong to races such as Gorkhas, Garhwalis, Assamese, Nagaland Tribals etc. whose average height is distinctly lower? Answer 'Yes' or 'No' and if the answer is 'Yes' state the name of the tribe race:.....

.....

3. (a) Have you ever had small-pox, intermittent or any fever, enlargement or suppuration of glands, spitting of Blood asthma, heart diseases, lung disease, fainting attacks, rheumatism appendicitis:

.....

or

(b) Any other disease or accident requiring confinement to bed and medical or surgical treatment:

.....

(c) Whether underwent any eye Surgery (Radial Keratotomy/Lasik/Excimer etc.) at any time. If yes, details thereof:

.....

(d) (i) Whether PH candidate - Yes/No

(ii) Sub-category of disability - LV  OA  OL  Hard Hearing/PD  Acid Attack Victim   
Leprosy Cured  Dwarfism  Muscular Dystrophy

(Please refer to Annexure-I of ESE Rules, 2021)

4. Have you suffered from any form of nervousness due to over work or any other causes.

.....

5. Have you been allotted to any service/posts on the basis of previous years exams. If yes, give details thereof

Have you joined the said service/post.....

6. Furnish the following particulars concerning your family :

Father's age if living and state of health	Father's age at death and causes of death	No. of brothers living, their ages & state of health	No. of brothers dead, their ages & cause of death	Mother's age if living & state of health	Mother's age at death & cause of Death	No. of sisters living, their ages & state of health	No. of sisters dead, their ages & cause of death
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Present Address

Mobile No. .... E-Mail I.D. ....

Identification marks .....

7. Details of medical examination conducted before, if any :-

(a) Place and Date of Medical Board. ....

(b) Service(s)/Post(s) for which examined and year of Examination .....

(c) Result of Medical Board Examination, if communicated or known .....

8. All the above answers are to the best of my knowledge & belief, true and correct and I shall be liable for action under law for any material infirmity in the information furnished by me or suppression of relevant material information. The furnishing of false information or suppression of any factual information would be a disqualification and is likely to render me unfit for employment under the Government. I am fully aware of the provisions of ESE-2021 Rules. If the fact that false information has been furnished or that there has been suppression of any factual information comes to notice at any time during my service, my services would be liable to be terminated.

Candidate's Signature  
presence

Signed in my

Signature of the Chairman of the Board with  
date and stamp of the Board

(b) Report of the Medical Board on (name of candidate) .....

Physcial Examination

1. BMI(BMI&gt;35 Temporarily Unfit) .....

Height (without shoes) .....  
(M-152 cm & F-150 cm)

Temperature .....

Girth of Chest :-

(i) (After full inspiration) .....

(ii) (After full expiration) .....

(iii) Expansion ((i) –(ii)) .....

(Pl tick  < 5 c.m.  > = 5 c.m. both M&F candidates) < 5 cm (Unfit)  
(M= Male, F= Female)2. Skin – any obvious disease .....3 Eyes

i. Any disease .....

ii. Night Blindness .....

iii. Colour Vision .....

a) Ishihara .....

b) EGL 1.3 mm .....

c) EGL 13 mm .....

iv. Field of vision .....

v. Binocular vision .....

vi. Visual acuity .....

vii. Fundus Examination .....

Visual Acuity

Acuity of Vision	Naked eye	With glasses	Strength of glasses		
			Spherical	Cylindrical	Axis
Distant Vision					
R.E.					
L.E.					
Near Vision					
R.E.					
L.E.					
Hypermetropia (Manifest)					
R.E.					
L.E.					

**In case of colour blindness, please state clearly whether the candidate is fit for services requiring High Grade Colour perception/Low Grade perception or totally colour blind as per Enclosure-I.**

4. Ears: Inspection.....

Hearing : ..... Right Ear.....

Left Ear.....

5. Glands.....Thyroid.....

6. Condition of teeth.....

7. Respiratory System : Does physical examination reveal anything abnormal in the respiratory organs?

.....  
.....

If yes, explain fully.....

8. Circulatory system :

(a) Heart : Any organic lesions ? Rate Standing.....

After hopping 25 times.....

Two minutes after hopping.....

(b) Blood Pressure : Systolic.....

Diastolic.....

9. Abdomen :

Girth.....

Tenderness.....

Hernia.....

(a) Palpable : Liver..... Spleen.....

Kidneys..... Tumors.....

(b) Haemorrhoids.....

Fistula .....

10. Nervous System : Indications of nervous or mental disabilities .....

.....

11. Loco-Motor System: Any abnormality.....

12. (A) Genito Urinary System : Any evidence of Hydrocele, Varicocele etc.

Urine analysis :

(a) Physical Appearance.....

(b) Sp. Gravity.. .....

(c) Albumin.....

(d) Sugar.....

(e) Casts.....

(f) Cells.....

12. (B) Report of X-ray examination of chest .....

12(C) Details of \*Gynae Examination (for female candidates only) .....

.....  
Signature of Lady Doctor

13. Is there anything in the health of the candidate likely to render him unfit for the efficient discharge of his duties in the Service for which he is a candidate?

.....  
.....

**NOTE :** \*In the case of a female candidate, if it is found to be pregnant, she should be declared temporarily unfit until the confinement is over, *vide* Regulation 10.

14. Services for which the candidate has been found qualified for the efficient and continuous discharge of duties may please be indicated clearly by  $\checkmark$  and services/posts for which he/she is considered unfit if any may also be indicated clearly by x:-

- (i) CES Gr. A, CE&MES Gr. A, CWES Gr. A, CES (Roads) Gr. A, AEE(BRES), AEE(QS&C) Gr.A in MES Surveyor Cadre and IDSE Gr. A.
- (ii) CPES Gr. A, CPES GR.B, INAS Gr. A, Indian Naval Material Management Service, IRRS Gr. A and AEE(P&T) Building
- (iii) AEE (Group A) in the corps of EME.

- (iv) IOFS Gr. A.
- (v) ITS Gr 'A', JTO(GCS Gr 'B').
- (vi) Survey of India.
- (vii) AEE(GSI).
- (viii) DAQAS
- (ix) ISDS

Is the candidate fit for field service ? .....

**NOTE : The Board should record their findings strictly in the following certificate**

**CERTIFICATE**

Shri .....Roll No. ....a candidate of ESE 2021 who has appeared for his first medical examination/re-examination on ..... (date) is found to be :

- |   |   |
|---|---|
| (i) Fit.....                                | } (Please ensure this matches with findings at column 13) |
| (ii) Unfit on account of.....               |   |
| (iii) Temporarily unfit on account of ..... |   |

(iv) Fit only for one of the following sub-categories of disability for which vacancies are identified for Persons with Disabilities(please tick relevant category and strike off others)

- (a) One Arm (OA) affected sub-category only.
- (b) One Leg (OL) affected sub-category only.
- (c) Hard Hearing /Partially Deaf(PD) only.
- (d) Lower Vision (LV) Sub-category only

Sign. of Member  
with stamp

Sign. of Member  
with stamp

Sign. of Chairman  
with stamp

Date :

Place :

**Enclosure I**

**I. Technical Services or posts requiring Higher Grade Colour Perception(HGCP) :—**

- i. Indian Defence Service of Engineer (IDSE).
- ii. Central Engineering Service (Roads).
- iii. Central Power Engineering Service. (Gr. 'A' and Gr. 'B')
- iv. Assistant Executive Engineer (Group 'A') in the Corps of EME.
- v. AEE(BRES) Group 'A' in Border Roads Organization.
- vi. Survey of India
- vii. AEE(QS&C) in MES Surveyor Cadre.

**II Technical Services or posts requiring lower grade colour perception(LGCP) [Or Defective Higher Grade Colour Perception –DHGCP] :—**

- i. Central Engineering Service.
- ii. Central Electrical and Mechanical Engineering Service.
- iii. Indian Naval Armament Service.
- iv. Indian Naval Material Management Service
- v. Indian Ordnance Factory Service.
- vi. Central Water Engineering Service.
- vii. Indian Radio Regulatory Service.
- viii. Assistant Executive Engineer(GSI).
- ix. Assistant Executive Engineer (P&T) Building.
- x. Defence Aeronautical Quality Assurance Service.
- xi. Indian Skill Development Service.

**III Services for which Colour Perception not required (or Defective Colour Perception Both Grades):-**

- i. ITS Gr. 'A'.
- ii. JTO (GCS Gr. 'B')

Sign. Of Member  
With stamp

Sign. Of Member  
with stamp

Sig. of Chairman/Medical Board  
with stamp

**APPENDIX-III****BRIEF PARTICULARS RELATING TO THE SERVICES/POSTS TO WHICH RECRUITMENT IS BEING MADE ON THE RESULTS OF THIS EXAMINATION.****1. INDIAN DEFENCE SERVICE OF ENGINEERS (IDSE)/ ASSISTANT EXECUTIVE ENGINEER (QS&C) IN MILITARY ENGINEER SERVICE (MES) SURVEYOR CADRE**

The selected candidates will be appointed on probation for a period of two years. A probationer during his probationary period may be required to pass such departmental and language tests, as Government may prescribe. If in the opinion of Government the work or conduct of an officer on probation is unsatisfactory or shows that he is unlikely to become efficient or if the probationer fails to pass the prescribed tests during the period Government may discharge him. On the conclusion of the period of probation, Government may confirm the officer in his appointment or if his work of conduct has in the opinion of Government been unsatisfactory, Government may either discharge him or extend the period of probation for such further periods as Government may consider fit.

- (a) Probationers will be required to undergo departmental Young Officers Basic Works (YOBW) Course during their probationary period of two years. The standard for Hindi Test should be 'PRAGYA' (equivalent to Matriculation standard).
- (b) The selected candidates shall if so required be liable to serve as commissioned officers in the Armed Forces for, period of not less than 4 years including the period spent on training if any :

Provided that such a candidate :

- (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;
- (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years;
- (iii) The candidates shall also be subject to Civilian in Defence Service (Field Liability) Rules, 1957 Published under No. SRO 92, dated 9th March, 1957. They will be medically examined in accordance with the medical standard laid down therein.

**(c) The following are the rates of pay in IDSE Cadre as per revised 7<sup>th</sup> CPC Pay Scales:-**

- (a) Assistant Executive Engineer—BP Rs. 56,100-1,77,500 Level - 10.
- (b) Executive Engineer— BP Rs. 67,700-2,08,700 Level - 11.
- (c) Executive Engineer (NFSG)— BP Rs. 78,800-2,09,200 Level - 12.
- (d) Superintending Engineer— BP Rs. 1,18,500-2,14,100 Level -13.
- (e) Chief Engineer— BP Rs. 1,44,200-450-2,18,200 Level- 14.
- (f) Additional Director General — PB Rs. 1,82,200-2,24,100 HAG Level- 15.
- (g) Director General — PB Rs. 1,82,200-2,24,100 HAG Level- 15.

**(d) The following are the rates of pay in AEE (QS&C) as per revised 7<sup>th</sup> CPC Pay Scales:-**

- (a) Assistant Executive Engineer – BP Rs 56,100-1,77,500 Level - 10.
- (b) Executive Engineer - BP Rs 67,700-2,08,700 Level - 11.
- (c) Executive Engineer (NFSG) – BP Rs 78,800-2,09,200 Level – 12.
- (d) Superintending Engineer - BP Rs 1,18,500-2,14,100 Level -13.
- (e) Chief Engineer – BP Rs 1,44,200-2,18,200 Level – 14.
- (f) Additional Director General – PB Rs 1,82,200-2,24,100 HAG Level – 15.

**2. CENTRAL ENGINEERING SERVICE (ROADS), GROUP 'A'**

- (a) The selected candidates will be appointed as Assistant Executive Engineer on probation for two years. On the completion of the period of probation, if they are considered fit for permanent appointments, they will be confirmed as Assistant Executive Engineer if permanent vacancies are available. The Government may extend the period of probation of two years.

If on the expiration of the period of probation or of any extension thereof, Government are of the opinion that an Assistant Executive Engineer is not fit for permanent employment or if at any time during such period of probation or extension they are satisfied that an Assistant Executive Engineer will not be fit for permanent appointment on the expiration of such periods of extension, they may discharge the Assistant Executive Engineer or pass such orders as they think fit.

- (b) Any person appointed on the results of this competitive examination shall if so required, be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than four years including the period spent on training, if any.

Provided that such person—

- (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment.  
(ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.  
(c) The following are the scales of pay admissible :

Assistant Executive Engineer	Level 10 in the Pay Matrix
Executive Engineer	Level 11 in the Pay Matrix
Executive Engineer (Non- Functional Action Grade)	Level 12 in the Pay Matrix
Superintending Engineer	Level 13 in the Pay Matrix
Chief Engineer	Level 14 in the Pay Matrix
Additional Director General	Level 15 in the Pay Matrix
Director General (Roads Development) and Special Secretary	Level 17 in the Pay Matrix

**Note** :—The pay of Government servant who held a permanent post other than a tenure post in substantive capacity prior to his appointment as a probation in the Central Engineering Services, Group 'A' Group 'B' will regulated subject to the provision of F.R.-22 B(1).

- (d) Nature of duties and responsibilities attached to the post in Central Engineering Service (Roads) Group 'A'.

**(i) Civil Engineering Posts :—**

To assist the Senior Technical Officers at Hqrs. and in the Regional Offices etc. of the Roads Wing, Ministry of Surface Transport in planning, preparing designs and estimates of roads/bridges work and scrutiny of proposals for such work received from the States.

**(ii) Mechanical Engineering Posts :—**

To assist the Senior Technical Officers Hqrs. and in the Regional Offices etc. of the Roads Wing, Ministry of Surface Transport in planning, procurement, operation and maintenance of roads/bridges construction equipments, to prepare estimates for repairs and maintenance of such equipments and scrutiny of proposals and estimates received from the States.

**3. INDIAN RADIO REGULATORY SERVICE GROUP 'A', DEPARTMENT OF TELECOMMUNICATIONS:-**

- a) **Probation/Confirmation:-** The selected candidates will be appointed on probation for two years. On completion of the period of the probation or any extension thereof, officers, if considered fit for the permanent appointment, be confirmed in the Service in terms of the orders of the Government issued from time to time.

During the period of probation or any extension thereof, an officer may be required by Central Government to undergo such courses of training and instructions or to pass such examinations and tests as prescribed by the Central Government from time to time, as a condition for satisfactory completion of probation.

**Scale of Pay:-**

i) Junior Time Scale	:	Level- 10 of Pay Matrix (Rs.56100-177500)
ii) Senior Time Scale	:	Level -11 of Pay Matrix (Rs. 67700-208700)
iii) Senior Time Scale (Non-functional Selection Grade)	:	Level -12 of Pay Matrix (Rs. 78800-209200)
iv) Junior Administrative Grade	:	Level -13 of Pay Matrix (Rs. 123100-215900)
v) Senior Administrative Grade	:	Level -14 of Pay Matrix (Rs. 144200-218200)
vi) Higher Administrative Grade	:	Level -15 of Pay Matrix (Rs. 182200-224100)

**Posting :-** Officers appointed to the Service shall be liable to serve anywhere in India or abroad.

**Liability to serve Defence Services or a post connected with the Defence:-** Any officers appointed to the Service, if so required, shall be liable to serve in any Defence or a post connected with the Defence of India, for a period of not less than four years including the period spent on training if any;.

**Power to relax:-** Where are the Government if of opinion that it is necessary or expedient so to do, it may, by order, for reasons to be recorded in writing and in consultation with the Commission, relax any of the provisions of these rules with respect to any class or category of persons.

#### 4. CENTRAL WATER ENGINEERING (GROUP 'A') SERVICE.

- (i) Persons recruited to the post of Assistant Director/Assistant Executive Engineer in the Central Water Engineering (Group A) Service shall be on probation for a period of two years:

Provided that the Government may, where necessary extend the said period of two years for a further period in accordance with the instructions issued by the Central Government from time to time in this behalf.

If on the expiry of the period of probation referred to above or any extension thereof as the case may be, the Government are of the opinion that a candidate is not fit for permanent appointment or if any time during such period of probation or extension they are satisfied that he will not be fit for permanent appointment, they may discharge or revert him to his substantive post or pass such order as they think fit. During the period of probation the candidates may be required by the Government to undergo such courses or training and instruction and to pass such examination and tests as it may think fit as a condition to satisfactory completion of probation.

- (ii) Officer appointed to the service shall be liable to serve anywhere in India or outside.
- (iii) Any person appointed on the result of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any:

Provided that such person:-

- (a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;
- (b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.
- (iv) The officers appointed to the post of Assistant Director/Assistant Executive Engineer can look forward for promotion to various higher grades in the Service.
- (v) The following are the admissible Pay Band and Grade Pay:

- |    |  |  |
|----|--|--|
| 1. | Assistant Director/Assistant Executive Engineer in CWC/<br>GFCC/CEA/ Asstt. Commissioner, DoWR, RD & GR, Ministry<br>of Jal Shakti.  | Level 10 in the Pay Matrix   |
| 2. | Deputy Director/Executive Engineer, CWC/<br>Deputy Commissioner, DoWR, RD & GR, Ministry<br>of Jal Shakti / Deputy Director/Executive Engineer, GFCC/<br>Assistant Secretary, SSCAC/Deputy Director/<br>Executive Engineer, CEA.   | Level 11 in the Pay Matrix   |
| 3. | Non-functional Second Grade  | Level 12 in the Pay Matrix<br>(Restricted to 30% of the senior duty posts/i.e.<br>posts in Level-11 and above in the Pay Matrix) |
| 4. | Director/Superintending Engineer, CWC/<br>DoWR, RD & GR, Ministry of Jal Shakti /SE, FBP/Director,<br>GFCC Director/Superintending Engineer, CEA   | Sr. Jt. Commissioner, Level 13 in the Pay Matrix   |
| 5. | Chief Engineer, CWC/Commissioner, DoWR, RD & GR, Ministry<br>of Jal Shakti /Member, Level 14 in the Pay Matrix GFCC/ Secretary,<br>SSCAC/ General Manager, FBP/Chief Engineer, CEA/Member GRMB /<br>Member Secretary, GRMB/ Member, KRMB/Member Secretary ,<br>KRMB/Member, PPA and Chief Engineer(P&D),<br>PPA/Member(Water Resources), CWMA / Secretary, CWMA. | Level 14 in the Pay Matrix.  |



6. Member, CWC/Chairman, GFCC/Chairman, KRMB/Chairman, GRMB. Level 15 in the Pay Matrix
7. Chairman, CWC Level 17 in the Pay Matrix

(vi) Nature of duties and responsibilities attached to the posts of Central Water Engineering (Group A) Service:-

(a) At Headquarters:-

Central Water Commission(CWC) is primarily responsible for almost all aspects of Water Resources Development, Officers in the headquarters are directly associated with planning, design, appraisal and monitoring of different water resources projects in the country. CWC through its various specialized Directorates fulfil its obligation towards these aspects. The officers at various level in Design units are associated with detailed studies in respect of design of various components of the water resources projects under different stage of implementation. There are specialized Directorates on Hydro-civil Design, Concrete and Masonry Dam Design, Earth and Rockfill Dam design, Barrage and Canal Design and Design of Gates on Hydraulic Structures. The activities relating to water resources assessment, design flood estimation and sediment analysis are carried out through Hydrological Studies Organizations of CWC. CWC has specialized units for Project Appraisal, Project Monitoring and Environmental Management. The Central Mechanical Organization of CWC is associated with Construction Equipment Planning and Contract management of almost all the major Water Resources development projects. The activities of CWC at its headquarters also include development of flood forecasting models through its P&D Organization and the planning and design of various flood management practices through its Flood Management Organisation.

(b) At field formation of CWC

The field organizations of CWC are directly involved with hydrological observation, project investigation, appraisal of medium irrigation projects, monitoring of identified projects and flood forecasting on almost all the major rivers in the country. These activities are carried out through a network of regional offices headed by the Chief Engineer and Circles/Directorates headed by Superintending Engineer/Director and executive Engineers. There are Sub-Divisions/Control Room headed by Assistant Executive Engineers which are directly involved with investigation of water resources development projects, hydrological observation and flood forecasting.

##### 5. BORDER ROAD ENGINEERING SERVICE GROUP 'A'

- (i) The selected candidates will be appointed as Assistant Executive Engineer on probation for a period of two years. On selection and issue of appointment letters by BRDB Secretariat, the candidate will be required to report to GREF Centre, Pune for induction training for a period as specified in the appointment letter. The probationer during the probation period may be required to pass such departmental tests (physical and written) as DGBR may prescribe from time to time. At any time during the period of probation or on conclusion thereof, if his work and conduct has in the opinion of the Government been unsatisfactory, Government may either discharge him or extend the period of probation for such further period as Government may consider fit.
- (ii) The selected candidate shall be liable to serve in any part of India or outside including the field area in war and in peace. They will be medically examined in accordance with the medical standards laid down.
- (iii) The following are scales of pay admissible to them.

###### (a) Civil Cadre

AEE (Civil) Level 10 in the Pay Matrix

Executive Engineer Level 11 in the Pay Matrix

(Civil)

Superintending Engineer Level 13 in the Pay Matrix

(Civil)

Chief Engineer Level 14 in the Pay Matrix

(Civil)

Additional DGBR Level 15 in the Pay Matrix

###### (b) E&M Cadre

AEE (E&M) Level 10 in the Pay Matrix

Executive Engineer Level 11 in the Pay Matrix

(E&M)

Superintending Engineer Level 13 in the Pay Matrix

(E&M)

Chief Engineer Level 14 in the Pay Matrix

(E&amp;M)

- (iv) The officers appointed to the post of Assistant Executive Engineer can look forward to promotion to the higher grades of Executive Engineer (Civil) and (E&M), Superintending Engineer (Civil) and (E&M), Chief Engineer (Civil) and (E&M) and ADGBR (Civil) after fulfilling the prescribed conditions. The requirements for promotion to next higher grade, as laid down above are those of minimum eligibility and that promotion in the grade concerned will take place subject to availability of vacancies only.
- (v) The officers appointed to the service are entitled special Compensatory Allowances and special Duty Allowance at prescribed rates when employed in certain specified area and free ration or allowance in lieu of ration; besides other usual allowances such as HRA etc. as admissible to the Central Government employees. They are also entitled to outfit allowance.
- (vi) The Officers appointed to the Border Roads Engineering Service Group 'A' post in BRO would also be subject to certain provisions of Army Act, 1950 and Army Rules, 1954 for the purpose of discipline, being a uniformed force.
- (vii) Training :—Probationers will be required to undergo departmental Young Officers course during their probationary period of two years in accordance with the prescribed training syllabus for the particular service/post at such places and in such manner and pass such examination during this period which may include written and physical tests as prescribed by the DGBR from time to time.
- (viii) Refund of the Cost of Training :- If for any reasons which in the opinion of the Government are not beyond the control of probationer, a probationer wishes to withdraw from training or probation, he shall be liable to refund the whole cost of his training and any other money paid to him during the period of his probation. For this purpose, probationers will be required to furnish a Bond, a copy of which will be enclosed along with their Offers of appointment. The probationers permitted to apply for examination for appointment to be conducted by UPSC, will not however, be required to refund the cost of training.
- (ix) Leave :—Officers will be eligible for leave in accordance with leave rules in force from time to time.
- (x) Duties and Responsibilities :—Nature of duties and responsibilities attached to the posts existing in Border Roads Organisation will be as specified by the DGBR from time to time for various establishments functional under him.
- (xi) The selected candidates, if so required, be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than four years including the period spent on training if any, provided that:—
  - (a) The candidate shall not be required to serve aforesaid after the expiry of ten years from the date of appointment, and
  - (b) The candidate shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

## 6. CENTRAL POWER ENGINEERING SERVICE, GROUP 'A' & GROUP 'B'.

(i) Candidates appointed to the posts of Assistant Director-I(Gr 'A')/Assistant Executive Engineer and Assistant Director Grade-II Group "B"/Assistant Engineer shall be on probation for a period of two years for a further period not exceeding one year.

If on expiration of the period of probation referred to above or any extension thereof, as the case may be, the Government are of the opinion that a candidate is not fit for permanent appointment or if at any time during such period of probation or extension, they may discharge or revert him to his substantive post or pass such order as they think fit.

During the period of probation, the candidate may be required by the Government to undergo such courses of training and instruction and to pass such examination and tests as it may think fit as a condition to satisfactory completion of probation.

Any person appointed, on the result of this competitive examination shall if so required, be liable to serve in any Defence Service or post connected with Defence of India for a period of not less than four years including the period spent in training, if any, provided that such person :—

- (a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;
- (b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

### (ii) Scale of Pay

The scale of pay for post of Central Power Engineering Group "A" and Group "B" Service in the Central

Electricity Authority is as follows :—

Electrical, Mechanical and Electronics and Telecommunication Engineering post in the Central Electricity Authority:-

S.No. Name of Post	Level in the Pay Matrix
1 Assistant Director Gr-I/AEE Group 'A'	Level 10 in the Pay Matrix (Rs.56,100-1,77,500)
2. Assistant Engineer/ Assistant Director, (Grade-II) Group 'B'	Level 08 in the Pay Matrix (Rs.47,600-1,51,100)

### (iii) Promotion to higher grades

The officers appointed to the post of Assistant Engineer/Assistant Director, Grade-II are eligible for promotion to higher grade viz. Assistant Director (Engineering) (Grade-I)/Assistant Executive Engineer, Deputy Director (Engineering)/Executive Engineer/Deputy Director (Engineering) (Non-functional Grade)/Director/Superintending Engineer and Chief Engineer/Principal Chief Engineer subject to availability of vacancies in the grade concerned, after fulfilling the conditions laid down in the Central Power Engineering (Group-B) Service Rules, 2010 as amended in 2013.

### (iv) Duties and Responsibilities

Nature of duties and responsibilities attached to the posts of Assistant Engineer/Assistant Director, (Grade-II) are as under:—

Planning for Power Development in the country for the optimal utilisation of resources. Collection, Analysis and Publication of data. Design engineering and monitoring, Renovation & modernization, Research and development of power plants including transmission and distribution system. Specifying technical standards, Safety regulations for operation and Maintenance of power projects plants, designs or projects etc.

## 7. DEFENCE AERONAUTICAL QUALITY ASSURANCE SERVICE (DAQAS)

The Defence Aeronautical Quality Assurance Service is an Organised Group 'A' Central Service comprising posts in the grades as mentioned at para(c). The service particulars of the Service are enumerated in the succeeding paragraphs.

- (a) Selected candidates will be appointed on probation for a period of 2 years provided that the Controlling Authority may extend the period of probation in accordance with the instructions issued by the Govt. from time to time. During the period of probation, or any extension thereof, candidates may be required by Govt. to undergo such courses of training and instructions and to pass examinations and test (including examination in Hindi) as Govt. may deem fit, as a condition to satisfactory completion of the probation. On completion of the period of his probation Government will confirm the officer in his appointment. If, however, during or at the end of the period of probation his work or conduct has in the opinion of Government been unsatisfactory, Government may either discharge him or extend his period of probation for such period as Government may think fit.
- (b)(1) Selected candidates shall if, so required, be liable to serve as Commissioned Officers in the Armed Forces for a period not less than four years including the period spent on training, if any; Provided that such person(i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment and (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.
- (2) Selected candidates shall be liable to serve anywhere in India or outside. They shall also be liable to serve in any other Ministry or Department of the Govt.
- (3) Selected candidates shall be liable to field service (including service on land or travel by service aircraft or Naval ships, etc.) in respect of investigation, development, indigenization and quality assurance work or such other work to which they may be deputed.
- (4) Selected candidates shall be liable to undergo such training and be detailed on courses of instruction in India or abroad as the Competent Authority may decide from time to time. The officer detailed for training outside India or with a private firm or factories in India, irrespective of the duration of the training, shall be liable to refund in full the cost of training if, for any reason, during the training or within a period of three years after the completion of such training, he chooses to discontinue his service.
- (c) The following are Scales/Levels of Pay admissible :-
  - (i) Senior Scientific Officer Grade II(Junior Time Scale) – Level 10 in the Pay Matrix.
  - (ii) Senior Scientific Officer Grade I (Senior Time Scale, Functional) – Level 11 in the Pay Matrix.
  - (iii) Principal Scientific Officer (Non-Functional)/Senior Time-Scale(Non Function Second Grade) –Level 12 in the Pay Matrix.
  - (iv) Director (Junior Administrative Grade) Functional – Level 13 in the Pay Matrix.
  - (v) Addl. Director General (Senior Administrative Grade) - Level 14 in the Pay Matrix.

- (vi) Director General (Higher Administrative Grade) – Level 15 in the Pay Matrix.
- (d) The members of DAQAS are entitled to Non-Functional Upgradation (NFU) to be granted as per the scheme/instructions of the Govt. issued from time to time.
- (e) Medical Standards of fitness for selected candidates shall be the same as for scientists and technologists serving in other similar scientific organizations under the Govt. Selected candidates for assignments involving limited field service shall undergo special medical checkup as may be prescribed, either at the time of selection or when they proceed on field service, as the case may be.
- (f) Defence Aeronautical Quality Assurance Service through ESE consists of the posts or grades of Engineers (Mechanical/Electrical/Electronics).

## 8. INDIAN SKILL DEVELOPMENT SERVICE

### A) Probation

1) Every officer appointed to the service either by direct recruitment or by promotion to the service either by direct recruitment through to the direct recruitment or by promotion in Junior Time Scale shall be on probation for a period of two years:

Provided that any decision that the controlling authority may extend the period of probation in accordance with the instructions issued by the Central Government from time to time in this regard:

Further that any decision for extension of period of probation shall be taken within eight weeks after the expiry of the period of probation and communicated in writing to the concerned officer together with the reasons for so doing within the said period.

2) On completion of the period of any extension thereof, the officers shall, if considered fit for permanent appointment, be retained in his appointment on regular basis and we confirmed in due course against the available substantive vacancy.

3) If, during the period of probation or any extension thereof, as the case may be, the Central Government is of the opinion that an officer is not fit for permanent appointment, the Central Government without any reason being assigned may:-

(a) If he was appointed by direct recruitment, discharge him from service in that post.\

(b) If he was appointed by promotion, revert him to the post held by him immediately before such promotion.

4) During the period of probation or any extension thereof, the officer may be required to undergo such courses, training and instructions and pass such examinations and test as the Central Government may consider necessary as a condition to the satisfactory completion of probation.

5) Subject to sub-rules (a) to (4), the other matter relating to the probation of the members of the salaries shall be governed by the instructions issued by the Central Government from time to time.

### B) Seniority

The inter-se seniority of the officers in the junior time scale shall be determined in accordance with the provision contained in the department of personal & training OM No. 22011/7/86-Estt. dated 3<sup>rd</sup> July, 1986 as amended from time to time.

### C) Scale of Pay

- i) Junior Time Scale Pay Matrix Level- 10 (Rs.56,100-1,77,500).
- ii) Senior Time Scale Pay Matrix Level -11 (Rs. 67,700-2,08,700).
- iii) Senior Time Scale(NFSG) Pay Matrix Level -12 (Rs. 78,800-2,09,200).
- iv) Junior Administrative Grade Pay Matrix Level -13 (Rs. 1,23,100-2,15,900)
- v) Senior Administrative Grade Pay Matrix Level -14 (Rs. 1,44,200-2,18,200).

**D)Refund of the cost of Training:-** If for any reasons which in the opinion of the Government are not beyond the control of the probationer wishes to withdraw from training or probation, he shall be liable to refund the whole cost of his training and any other money paid to him during the period of his probation. For this purpose probationers will be required to furnish a Bond, a copy of which will be enclosed along with their offers of appointment. The probationers permitted to apply for examination for appointment for Indian Administrative Service, Indian Foreign Service etc. will not however, be required to refund the cost of the training.

**E) Leave :-** Officers will be eligible for leave in accordance with the Leave Rules in force from time to time.

**F) Medical Attendance:-** Officers will be eligible for medical attendance and treatment in accordance with the Rules in force from time to time.

**G) Provident Fund and Pensions:-** Candidates recruited in the service will be governed by the New Pension Schemes of Central Government.

**H) Liability for service in any part of India and other conditions of service:-** The officers appointed to the service shall be liable to serve anywhere in India or outside.

**I) Disqualification :-** No Person –

(a) Who has entered into or contracted a marriage with a person having a spouse living: or

(b) Who, having a spouse living has entered into or contracted a marriage with any person, shall be eligible for appointment to the Service:

Provided that the Central Government may, if satisfied, that such marriage is permissible under the personal law applicable to such person and the other party to the marriage and that there are other grounds for so doing, exempt any person from the operation of this rule.

## 9. INDIAN NAVAL ARMAMENT SERVICE

- (a) Candidate selected for appointment to the service will be appointed as probationers for a period of two years which period may be extended at the discretion of competent authority. Failure to complete the probation to the satisfaction of the competent authority will render them liable to discharge from service.
- (b) The appointment can be terminated at any time by giving the required period of notice (one month in the case of temporary appointment and three months in the case of permanent appointment by competent authority). The Government, however, reserves the right of terminating services of the appointees forthwith or before the expiry of the stipulated period of notice by making payment of a sum equivalent to pay and allowances for the period of notice or the unexpired portion thereof.
- (c) They will be subject to term and conditions of the Service as applicable to civilian Government Servants paid from the Defence Services Estimates in accordance with the orders issued by the Government of India from time to time. They will be subjected to field Service Liability Rules, 1957 as amended from time to time.
- (d) They will be liable for transfer anywhere in India or abroad. However, major locations, where, officers are likely to be posted, are Mumbai, Visakhapatnam, New Delhi (HQ), Kochi and at Goa. INAS officers are also required to go on foreign deputation as and when required for specialized training/assignment.
- (e) Scale of pay and classification-Group- A Gazetted are given below:
  - (i) Junior Time Scale Grade (Assistant Manager/ Assistant Director of Naval Armaments) – Level 10 (Rs. 56100-177500).
  - (ii) Senior Time Scale Grade (Manager/Deputy Director of Naval Armaments) - Level 11 (Rs. 67700-208700).
  - (iii) Junior Administrative Grade (Non-Functional) (Deputy General Manager/Joint Director of Naval Armaments)- Level 12 (Rs. 78800-209200).
  - (iv) Junior Administrative Grade (Functional) (General Manager/Additional General Manager/Principal Director/Director of Naval Armaments) - Level 13 (Rs. 118500-214100).
  - (v) Senior Administrative Grade (Chief General Manager/Addl. Director General of Naval Armament Supply) - Level 14 (Rs. 144200-218200).
  - (vi) Higher Administrative Grade (Director General of Naval Armament) - Level 15 (Rs. 182200-224100).
- (f) Career Growth : The promotional avenue and the detailed terms and conditions are given below:
  - (i) Senior time Scale Grade (Manager/Deputy Director of Naval Armaments): Officers of INAS Cadre in the Junior Time Scale Grade (Assistant Manager/Assistant Director) with four years regular service in the grade are eligible for promotion to the Senior Time Scale Grade on the basis of selection on the recommendations of DPC provided that only, those officers who have passed the Departmental Examination after induction training will be considered for promotion.
  - (ii) Junior Administrative/Grade (Non-functional) Deputy General Manager/Joint Director of Naval Armaments : Officers of INAS Cadre in the Senior Time Scale Grade who have completed five years of regular service in the Senior Time Scale Grade are eligible for appointment to the Junior Administrative Grade (Non-Functional).

- (iii) Junior Administrative Grade (Functional) General Manager/Additional General Manager/Principal Director/Director of Naval Armaments : Officers of INAS Cadre in the Senior Time Scale Grade on completion of thirteen years of regular service in the Gp 'A' including four years service rendered in STS Grade, are eligible for promotion to the Junior Administrative Grade (Functional).
- (iv) Senior Administrative Grade (Chief General Manager/Addl Director General of Naval Armament) : Officers of INAS Cadre in the Junior Administrative Functional Grade with three years regular service in the Grade are eligible for promotion to the posts of Chief General Manager on the basis of selection to be made by the appropriate DPC.
- (v) Higher Administrative Grade (Director General of Naval Armament) : Officers of INAS Cadre in the Senior Administrative Grade with three years regular service in the grade are eligible for promotion to the post of Director General of Naval Armament on the basis of selection to be made by the appropriate DPC.
- (g) The requirements for promotion to next higher grade as laid down above are those of minimum eligibility and that promotion in the grade concerned will take place subject to availability of vacancies only.
- (h) The officers are required to take various responsibilities attached with the growth of career like in-charge of a division, head of a particular establishment/organization in the Span of entire career.

**NOTE :** The pay of the Government servant who held a permanent post other than tenure post in a substantive capacity immediately prior to his appointment as a probationer may be regulated subject to the provision of F.R. 22B(1) and the Corresponding article in CSR applicable to probationer in the Indian Navy.

- (j) Nature of duties and responsibilities attached to the post of Junior Time Scale Grade in the Naval Armament Organization of Indian Navy, Ministry of Defence:
  - (i) Production, planning and direction of work relating to repair, modification and maintenance of armaments, incorporating various mechanical, electronics and electrical devices and system production and productivity.
  - (ii) Provision of machinery, electronic and electrical equipment for repair, maintenance and overhaul.
  - (iii) Development work to establish import substitutes, preparation of indigenous design specifications. Providing of mechanical, electronics and electrical spares for armaments.
  - (iv) Providing of mechanical, electronics and electrical spares for armaments.
  - (v) Periodical calibration testing/examination of sub-assemblies and assemblies of mechanical electronics and electrical items of armaments (missiles, torpedoes, mines and guns) measuring instruments etc.
  - (vi) Providing logistic support in respect of armament stores to fleet and Naval Establishments.
  - (vii) Rendering of technical advice to the service in all matters relating to mechanical, electronic and electrical engineering in respect of armaments.
  - (viii) Functions of personnel management of large number of technical and non-technical work force.
- (k) Additional Unique facilities
  - (i) The officers of this cadre (INAS) discharge the duty and responsibility in Naval Armament Organization which is one of the important wing of Indian Navy. Facilities available to Naval service officers like CSD canteen facilities for self & family, membership of officer's mess/club/institute/ swimming pool etc. are extended to INAS Officers also. The residential complex of INAS cadre officers is also under Naval Security Zone, where one can feel fully secured throughout service period.
  - (ii) Being the part of Indian Navy, the INAS cadre officers have the opportunity to participate in various adventure and sports activities.

#### **10. POST OF INDIAN NAVAL MATERIAL MANAGEMENT SERVICE**

- (i) Candidates selected for appointment to these posts through ESE will be placed on probation for a period of two years. On satisfactory completion of the probation, they would be considered for continuance in their appointment. Government may either extend the period of probation of two years or discharge them from service if their work or conduct, in the opinion of Government has been unsatisfactory.
- (ii) They will be subject to terms and conditions as applicable to Civilian Government Servants paid by the Defence Services Estimates in accordance with the orders issued by the Government of India from time to time.
- (iii) Officers appointed shall be liable to serve any-where in India and abroad.
- (iv) Officers appointed shall be liable to undergo courses of instruction in India or abroad as the Government may decide from time to time.

- (v) The candidates will be subjected to civilians in Defence Services (Field Liability) Rules, 1957 published under No. S.R.O. 92 dated 9th March, 1957. They will be medically examined in accordance with the medical standards laid down therein.
- (vi) The candidates start their service in the department as Indian Naval Material Management Service and in the course of their service are promoted to various grades in the Department subjected to availability of vacancies and fulfilment of the prescribed conditions. The channel of promotions and the scales of pay are as under :—
- (aa) Indian Naval Material Management Service, Group “A” post – Level 10 (Rs. 56100-177500).
- (bb) Naval-Store Officer - Level 11 (Rs. 67700-208700).
- (cc) Senior Naval Store Officer - Level 12 (Rs. 78800-209200).
- (dd) Director - Level 13 (Rs. 118500-214100).
- (ee) Senior Director - Level 14 (Rs. 144200-218200).
- (vii) Nature of duties and responsibilities attached to the post of Indian Naval Material Management Service, Ministry of Defence :—
- (a) Provisioning of all types of Stores.
- (b) Inviting tender inquiry, preparation of comparative statements and placement of orders and monitoring their progress through Integrated Logistics Management System (ILMS).
- (c) Ensure all Material Planning action through ILMS.
- (d) Ensure proper Warehousing and inventory control of all the items stocked in the Depot through ILMS preservation Shipping and Transport, local purchase of items.
- (e) Arranging fueling/de-fueling storing and de-storing of ships.
- (f) Issue receipt and accounting, preservation packing and stock taking of Store Houses under his control.
- (g) Stock/inventory control and depot management.
- (h) Disposal of surplus, scrap and silage oil.

#### 11. INDIAN TELECOMMUNICATION SERVICE GROUP ‘A’

Appointment will be made on probation for a period of 2 years. If in the opinion of Government, the work or conduct of an officer on probation is unsatisfactory, or shows that he is unlikely to become efficient, Government may discharge him forthwith. On the conclusion of his period of probation, Government may confirm the officer in his appointment or if his work or conduct has, in the opinion of the Government, been unsatisfactory, Government may either discharge him from the service or may extend his period of probation for such further period as the Government may think fit.

Officer will be required to pass any departmental examination or examinations that may be prescribed during the period of probation. They will also be required to pass tests in Hindi before confirmation.

- (b) Officers will also be required to pass professional and language test.
- (c) Any person appointed on the results of the Competitive examination shall if so required, be liable to serve in any Defence Service or post connected with the defence of India for a period of not less than four years including the period spent on training, if any:  
Provided that such person:—
- (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment.
- (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.
- (d) The following are Level in the Pay Matrix admissible:—
- (i) Junior Time Scale: Level (Rs. 56100-177500)
- (ii) Senior Time Scale: Level 11 (Rs. 67700-208700)
- (iii) Junior Administrative Grade: Level 12 (Rs. 78800-209200)
- (iv) Non- Functional Selection Grade in Junior Administrative Grade (NFSG): Level 13 (Rs. 123100-215900)
- (v) Senior Administrative Grade: Level 14 (Rs. 144200-218200)
- (vi) Higher Administrative Grade: Level 15 (Rs. 182200-224100)
- (vii) Higher Administrative Grade Plus Grade: Level 16 (Rs. 205400-224400)
- (viii) Apex Scale (equivalent to Secretary of Govt. of India): Level 17 (Rs. 225000)
- (ix) The officer shall also be eligible for consideration for the post of Members of the Digital Communications Commission which is equivalent to Secretary of Govt. of India.

**Note:** The pay of a Government Servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer will be regulated subject to the provision of FR-22B(I).

(e) Nature of duties and responsibilities attached to the post in the Indian Telecommunication Service (Group A).  
Junior Time Scale

JTS level officers will be posted in various units of department of telecommunications including those dealing with issue of licences, their administration and enforcement to meet the objectives of licensing and national security. They may be attached to offices responsible for Standardisation of Indian Telecommunication network, preparation of Generic requirements of Telecommunication equipment, spectrum utilisation like in Telecom Engineering Centre (TEC). They will participate in technology validations; various study group meetings of standardization bodies like ITU, IETF etc. JTS level officers will be posted in various units in DoT HQ to assist in Telecom Policy formulation, preparation of licensing conditions for telecom operations, USO fund disbursement activities, Functional units in DoT like Access Service, Data Service and Value Added Service, Vigilance, Security unit, New Technologies etc. and any other units carrying out the works relating to telecommunications and new as well as converged networks and services. While working in field units or any other unit of DoT, they may also be deployed to operate the Telecom network of licensed service providers in case of emergency like war or any other reason in public interest as decided by the Government. JTS level officers will normally report to STS level officers.

#### **Senior Time Scale**

STS level Officers will normally be posted under officers of JAG grade in various units of Department of Telecommunications including those dealing with issue of licences, registration of service providers, their administration and enforcement. They will also work in the field of Standardisation of Indian Telecommunication network, preparation of Generic requirements of Telecommunication equipment, utilization of spectrum like in Telecom Engineering Centre (TEC), technology validations and participate in the proceedings of various study groups of standardization bodies like ITU, IETF etc. While working in DoT HQ, they will be required to assist in Telecom Policy formulation, USO fund disbursement activities, Vigilance, including Security unit and any other units carrying out the works relating to telecommunications and new as well as converged networks and services. While working in Field units or any other unit of DoT, they may also be deployed to operate the Telecom network of licensed service providers in case of emergency like war or any other reason in public interest as decided by the Government.

#### **Junior Administrative Grade**

JAG officers have a supervisory and administrative role over the activities of JTS and STS level officers. They will normally report to SAG/HAG officers and carry out functions to support their activities in the fields of their responsibility. They will also be required to contribute immensely through their technical/administrative skills in discharging their duties especially in the areas of standardization, evaluation and introduction of technologies, investigation of malpractices and establishment and operations of networks as well as international technical coordination. JAG officers will be posted in various units of DoT to provide middle level administrative and managerial support to DDsG/ Sr. DDG in DoT/ Digital Communications Commission while handling the works of Telecom Policy formulation, preparation of licensing conditions for telecom and converged service providers including Access Service, Data Service and Value Added Service, Vigilance, International Relations, Public Grievances, Human Resources/Establishment matters, monitoring of PSUs/Autonomous bodies, telecom related national security matters etc. They will also be responsible for planning, execution, and O & M of systems/installations for Government use or the networks of licensed telecom operators in emergency situations or in public interest as decided by the Government.

#### **Senior Administrative Grade and Higher Administrative Grade**

Responsible for overall management and administration in DoT, Deputy Director General in Digital Communications Commission provides top level assistance to the Digital Communications Commission in policy formulation & overall administration. As heads of field units of DoT, HAG officers will be in charge of activities handled by the field units related to Service compliance, Security, Technology, Rural telecomm connectivity, public grievances etc. They will be responsible for planning, execution, and O & M of systems/installations for Government use or the networks of licensed telecom operators in emergency situations or in public interest as decided by the Government. Sr. DDG and DDsG in Telecom Engineering Centre are responsible for R & D in communication systems, Validation of various Telecom Technologies, preparation of Generic requirements of Telecommunication equipment. They will participate in technology validations and various study group meetings of standardization bodies like ITU, IETF etc. SAG/HAG officers will be posted as incharge of various units in DoT HQ to provide top level assistance to DoT/ Digital Communications Commission while handling the works of Telecom Policy formulation, preparation of licensing conditions for telecom and converged service providers including Access Service, Data Service and Value Added Service, Vigilance, international relations, Public Grievances, Human Resources/Establishment matters, monitoring of PSUs/ Autonomous bodies, telecom related national security matters etc.



**Higher Administrative Grade +/ Advisor Grade**

The officers in this grade shall be primarily responsible for formulating and administering various policies including Personnel policy and international relations in the field of telecommunications/converged networks, ensuring annual plan implementation by field units by working out the various requirements of field units and getting timely approvals. Advisors are responsible for assessment and inclusion of the new technologies into Indian telecom infrastructure as per overall socio-economic requirements of the country. Advisors are responsible for formulating security policies in coordination with security agencies to check possible misuse of telecom/converged networks by anti-national elements. They shall handle the work of administration and monitoring of PSUs and autonomous bodies under DoT and in the areas of technology, licensing, human resources/ establishment matters, operations, inter-ministerial coordination etc. As heads of field units of DoT, in charge of all activities handled by the field units related to Service compliance, Security, Technology, Rural telecomm connectivity, public grievances etc.

**Apex Level**

Officer at Apex level will be Director General Telecom. All the field units in Licensed service areas of DoT will report to DGT. He/ She shall be the overall in charge of all activities handled by the field units related to Service compliance, Security, Technology, Rural telecomm connectivity, public grievances etc.

Junior Telecom Officer (JTO) - (GCS Group B - Gazetted)

- (i) The post of JTO will be Group-B, Gazetted carrying the pay scale of Level 7 (Rs 44900 – 142400)
- (ii) Appointment will be made on probation for a period of Two years. This period also includes successful completion of six months Induction Training in the field of duties of the post as part of probation.
- (iii) A Junior Telecom Officer who has not completed the age of forty years shall if so required, be liable to serve in the Territorial Army subject to the provisions of Section 6 A of the Territorial Army Act-1948(56 of 1948) and the rules made thereunder.
- (iv) The candidates selected both against the direct recruitment quota vacancies and departmental promotion quota of vacancies shall have to successfully undergo training as per the training plan laid down by the Department.

Nature of duties and responsibilities attached to the post of JTO (GCS Group B-Gazetted).

Junior Telecom Officer will be posted in various units of Department of Telecommunications including DoTHQ, Telecom Engineering Centre, NTIPRIT and field units of DoT. JTO will normally report to Assistant Directors and above and carry out functions assigned to them from time to time.

**12. AEE GROUP 'A' ORGANISED SERVICE IN GEOLOGICAL SURVEY SURVEY OF INDIA.**

**a) Probation** – Candidates recruited to this service will be on probation for a period of two years including training. The probation period is likely to be extended if the performance of the candidate during the training and working post is not found to be satisfactory by the competent authority. On successful completion of period of probation, the candidate, if considered fit for permanent appointment, will be confirmed as Assistant Executive Engineer.

**b) Termination** – The appointment of a probationer can be terminated by three months' notice in writing on either side during the period of probation. Such notice is not, however, required in case of dismissal or removal as disciplinary measure, and compulsory retirement due to mental or physical incapacity.

If in the opinion of the Government the work or conduct of the probationer is unsatisfactory or shows that he is unlikely to be come efficient, the Government may terminate the services and discharge him forthwith.

If for any reason(s) (which in the opinion of the Government are not beyond the control of the probationer) a probationer wishes to withdraw from training or probation, he shall be liable to refund the whole cost of his training and any other money paid to him during the period of probation. For this purpose, probationers will be required to furnish a bond, a copy of which will be enclosed along with their offers of appointment. The probationers permitted to apply for examination for appointment to Civil Services Examination, will not however, be required to refund the cost of the training.

**c) Scales of Pay-**

1	Assistant Executive Engineer (Junior Time Scale)	-	Level 10 in the pay matrix (Rs 56,100/- - 1,77,500/-)
2.	Executive Engineer (Senior Time Scale)	-	Level 11 in the pay matrix (Rs 67,700/- - 2,08,700/-)
3.	Executive Engineering (NFJAG) (Senior Time Scale- Non-functional second grade)	-	Level 12 in the pay matrix (Rs 78,800/- - 2,09,200/-)
4.	Superintending Engineer (Junior Administrative Grade Grade-II)	-	Level 13 in the pay matrix (Rs 1,23,100/- - 2,15,900/-)
5.	Chief Engineer	-	Level 14 in the pay matrix (Rs 1,44,200/- - 2,18,200/-)

Officers of the service will be eligible for leave in accordance with the leave rules in force.  
 Officers will be eligible for medical attendance and treatment as per rule.  
 Officers of the service will be governed by the New Pension Schemes of Central Government.

**d) Posting** – The officers appointed to the service shall be liable to serve anywhere in India or abroad.

### **Duties and Responsibilities**

Nature of duties and responsibilities attached to the post of Assistant Executive Engineer in GSI are as under:-

1. After completion of training period he shall be posted to any regional office of GSI. At present there are six regional offices with headquarters at Kolkata, Nagpur, Jaipur, Hyderabad, Lucknow and Shillong. However, in no case, he shall be posted in his home region.
2. Immediately after posting in region, he shall be posted to drilling camp for field exposure and to get acquainted with various activities of the drilling unit, under the officer-in-charge of the drill unit for a period as considered fit by the competent authority (not more than six months in any case). After acquainting with various activities of drill unit, he shall be declared as officer-in-charge of any drill unit operating in the region.
3. As an officer in-charge of drill unit, he shall be responsible for successful execution of drilling operation in field, as well as repair and maintenance of machineries, monitoring of rolling fund for field operation and establishment of camp.

### **13. SURVEY OF INDIA GROUP 'A' SERVICE**

1. Selected candidates will be appointed on probation for a period of two years.

Provided that the Controlling Authority may extend the period of probation in accordance with the instructions issued by Government from time to time.

Provided further that any decision for extension of a probation period shall be taken ordinarily within eight weeks after the expiry of the previous probationary period and communicated in writing to the concerned officer together with the reasons for so doing within the said period.

On completion of period of probation or any extension thereof, as the case may be, if the Government is of the opinion that an officer is not fit for permanent appointment, for reasons to be recorded in writing may discharge or revert the officer to the post held by him prior to this appointment in the service, as the case may be.

During the period of probation, or any extension thereof, candidates may be required by Government to undergo such courses of training and instructions and to pass examinations and tests (including examination in Hindi) as Government may deem fit, as a condition to satisfactory completion of the probation.

2. Officers appointed shall be liable to serve anywhere in India and abroad.
3. Officers appointed shall be liable to undergo such training and be detailed on courses of instruction in India or abroad as Government may decide from time to time.
4. Any person appointed on the result of competitive examination shall if so required be liable to serve in any defence services or posts connected with defence of India for a period not less than 4 years including the period spent on training, if any, provided that such persons shall not be required:-
  - (i) to serve as foresaid after the expiry of 10 years from the date of appointment.
  - (ii) ordinarily to serve as aforesaid after attaining the age of 40 years.
5. The following are the scales of pay admissible:-

Junior Time Scale	Pay Band 3 Rs 15600-39100 + Grade Pay Rs 5400.
Senior Time Scale	Pay Band 3 Rs 15600-39100 + Grade Pay Rs 6600.
Junior Administrative Grade	Pay Band 3 Rs 15600-39100 + Grade Pay Rs 7600.
Selection Grade	Pay Band 4 Rs 37400-67000 + Grade Pay Rs 8700.
Senior Administrative Grade	Pay Band 4 Rs 37400-67000 + Grade Pay Rs 10000.
Surveyor General of India	HAG Rs 67000 (Annual increment @ 3%)-79000.

5. Nature of duties and responsibilities attached to the various posts.

**Deputy Superintending Surveyor (JTS)** – Required to carry-out Survey work in the fields of geodetic photogrammetry, cartography and digital mapping as an individual worker, as well as Section Officer/Camp Officer to supervise Sections/Camps. He will also assist Officer-in-Charge(Superintending Surveyor) in both-technical & administrative work of the unit.

**Superintending Surveyor (STS)** – Responsible for the organization and discipline of the Party, custody, maintenance and accurate accounting of stores, economical expenditure of funds at his disposal proper training of all his Officers and men in their duties and in the method of Survey best suited to the work execution and supervision of all technical work, field verification, fair mapping, photogrammetry and digital mapping etc.

**Deputy Director (JAG)** – Assist the functional Director in smooth and efficient functioning of the Directorate, responsible for scrutinizing, completion and monitoring of all technical, administrative and financial reports and returns, for arranging trade tests, training circles DPCs presiding over procurement boards, finalizing of tender and contract and all other matter delegated by the Director.

**Director/Deputy Director Selection Grade (Selection Grade)** – Responsible for all surveys and mapping, appointing and disciplinary authority for all Group ‘c’ staff, technical coordinating guidance, supervision and monitoring of Surveying & Mapping operations including advice to State Government, Central Project Authorities etc., financial management, budgeting monitoring and control of entire expenditure of the Directorate.

**Additional Surveyor General (SAF)** – Complete overall responsibility for the efficient performance of the Circles under his charge in respect of Technical scientific, Administrative, Human Resources Development, finance and accounts, finalizing the training, field, fair mapping, digital mapping and reprography programmes and printing work for all Circle3s under his charge, monitoring progress of technical work according to the prescribed norms and ensure requisite standard of accuracy at every stage, responsible for development/adoption of new technical methods of work, advice to State Governments, on all surveying matters falling in his Zone.

#### 14. CENTRAL ENGINEERING SERVICE GROUP “A” AND CENTRAL ELECTRICAL AND MECHANICAL ENGINEERING SERVICE GROUP “A”

- (a) The selected candidates will be appointed on probation for two years. They would be required to pass the prescribed departmental examination during the period of probation. On satisfactory completion of their probation they could be considered for confirmation or continuance in their appointment. Government may extend the period of probation of two years.

If on the expiration of the period of probation or of any extension thereof, Government are of opinion that the officer is not fit for permanent employment/ retention or if at any time during such period of probation or extension, They are satisfied that the officer will not be fit for permanent appointment/ retention on the expiration of such period or extension they may discharge the officer or pass such order as they think fit.

- (b) As things stand at present, all officers appointed in Central Engineering Service Group ‘A’ are eligible for promotion to the next higher grade viz., Executive Engineer after completion of five years service in the grade of Assistant Executive Engineer subject to availability of vacancies and on condition that they are otherwise found fit for such promotion.
- (c) Any person appointed on the results of this competitive examination shall, if, so required be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than four years including the period spent on training, if any.

Provided that such person :

- (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;
- (ii) shall not ordinarily be required to serve as aforesaid after a training the age of forty years.
- (d) The following are the rates of pay admissible:—
  - (i) JTS (A.E.E.)-Pay Band 3- Rs.15,600-39,100+Grade Pay of Rs. 5,400/-
  - (ii) S.T.S. (E.E.)-Ordinary Scale Rs. 15,600- 39,100+Grade Pay of Rs. 6,600/- Non-functional selection Grade-Rs. 15,600-39,100+Grade Pay Rs. 7,600/-
  - (iii) Junior Administrative grade (S.E.) Rs. 37,400-67,000+Grade Pay of Rs. 8700/-
  - (iv) Senior Administrative Grade (C.E.) Rs. 3,400-67,000+Grade Pay of Rs. 10,000/-
  - (v) Higher Administrative Grade

Additional D. G. – Rs. 67, 000- (Annual increment @ 3%) 79,000/-

Higher Administrative Grade plus (HAG+)

Special D.G. Rs. 75,500 – (Annual increment @ 3%) – 80,000

Director General Rs. 80,000 (fixed)

Director General post is common to all the three disciplines i.e. Civil, Electrical & Mechanical and Architect.

**NOTE :—**The pay of a Government servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as probationer will be regulated subject to the provision of F.R. 22-B(1).

(e) Nature of duties and responsibilities attached to the posts in Central Engineering Service (Group A) and Central Electrical & Mechanical Engineering Service (Group A).

(i) **Central Engineering Service Group A.—**

Candidates recruited to this Service through Engineering Services Examination are employed in the Central Public Works Department on Planning, Designing, Construction and Maintenance of various civil works (of Central Government) comprising residential buildings, office buildings, institutional and research centres, industrial buildings, hospitals and development schemes, aerodromes, highway and bridges etc. The candidates start their service in the Department as Assistant Executive Engineers (Civil) and in the course of their service are promoted to various senior ranks in the Department.

(ii) **Central Electrical and Mechanical/Engineering Service Group 'A'.—**Candidates recruited to this Service through Engineering Services Examination are employed in the Central Public Works Department on Planning, Designing, Construction and Maintenance of electrical components of various civil works (of Central Government) comprising of electrical installations, electrical sub-stations and power houses, air-conditioning and refrigeration, runway lighting of aerodromes, operation of mechanical workshops, procurement and upkeep of construction machinery etc. The candidates start their service in the Department as Assistant Executive Engineers (Electrical) and in the course of their service are promoted to various senior ranks in the Department.

#### Annexure-I

**A List of Services/Posts identified suitable for Persons with Benchmark Disability Category along with the physical requirements and functional classifications\*.**

Sl. No.	Name of Services	Functional Classification	Physical Requirements
<b>Category I-Civil Engineering</b>			
1.	Central Engineering Service	OA or OL or Hard Hearing	As per MOSJ & E instructions
2.	Indian Defence Service of Engineers (Civil Engg.)	PD or OA	B,S,ST,W,SE,H&RW
3.	Central Water Engineering Service Gr 'A'	OA or OL, Leprosy Cured, Acid Attack Victims, Dwarfism, HH, SLD, OA&PD, OL&PD	S,ST,BN,W,SE,MF,C,R,W&RW
4.	Central Engineering Service (Roads) Gr. A	OA or OL or PD/Hard Hearing	B,S,ST,W,SE,H,RW,D,&W
5.	AEE (Civil) in Border Roads Organization	OA	B,S,ST,W,SE,H&RW, C, KC
6.	AEE (QS&C) in Military Engineer Service(MES) Surveyor Cadre	PD or OA	B,S,ST,W,SE,H&RW
7.	Indian Skill Development Service	OA or OL	As per MOSJ & E instructions
8.	Survey of India Group 'A' Service	PD	F,PP,L,KC,B,S,ST,W,SE & RW
<b>Category II-Mechanical Engineering</b>			
1.	Central Water Engineering Service Gr 'A'	OA or OL, Leprosy Cured, Acid Attack Victims, Dwarfism, Hard Hearing, Specific Learning Disability, OA&PD, OL&PD.	S,ST,BN,W,SE,MF,C,R,W&RW
2.	Central Power Engg. Service Gr. A&B (Mech. Engg. Posts)	OL	ST,S,SE,MF,BN,KC,H&C

3.	Indian Naval Armament Service	OL	S,SE,H&RW
4.	Indian Naval Material Management Service	OL	S,SE,H&RW
5.	Geological Survey of India Engineering Service Gr 'A'	OL, Hard Hearing	S, ST, MF,SE, BN, KC, H,C
6.	Indian Defence Service of Engineers (Mech. Engg.)	PD or OA	B,S,ST,B,W,SE,H&RW
7.	Assistant Executive Engineer Group 'A' (Electrical & Mechanical) (Mechanical Engineering Post) in Border Roads Engineering Service Gr. 'A'	OA	B,S,ST,W,SE,H&RW, C, KC
8.	Indian Skill Development Service	OA or OL	As per MOSJ & E instructions
<b>Category III-Electrical Engineering</b>			
1.	Central Elect. & Mech. Engg. Service (Elect. Engg.)	OL or Hard Hearing	As per MOSJ&E instructions
2.	Central Power Engg. Service Gr. A&B (Elect. Engg. Posts)	OL, Hard Hearing	S,ST,BN,SE,W,MF,PP,L,KC,C&RW
3.	Indian Defence Service of Engineers (Elect. Engg.)	PD or OA	B,S,ST,W,SE,H&RW
4.	Indian Naval Material Management Service	OL	S,SE,H&RW
5.	Indian Skill Development Service	OA or OL	As per MOSJ & E instructions
<b>Category IV-Electronics &amp; Telecommunication Engineering</b>			
1.	Indian Naval Armament Service	OL	S,SE,H&RW
2.	Indian Radio Regulatory Service Gr 'A'	OA or OL	S,H&RW/Speaking
3.	Indian Naval Material Management Service	OL	S,SE,H&RW
4.	Indian Telecom Service, Group A	LV, OL or OA or MW	F,S,ST,W,SE,H&RW
5.	Junior Telecom Officer Group B in ITS	LV,OL or OA or MW	F,S,ST,W,SE,H&RW
6.	Central Power Engineering Service Gr. A&B (Elec. & Telecom)	OL, Hard Hearing	S,ST,BN,SE,W,MF,PP,L,KC,C&RW
7.	Indian Skill Development Service	OA or OL	As per MOSJ&E instructions

\*The list is subject to revision.

The abbreviations used (indicated as below) are as per the specification in Ministry of Social Justice and Empowerment's Notification No. 16-15/2010-DDIII dated 29.07.2013

OA=One Arm affected, OL=One Leg affected, HI=hearing Impaired, PD=partially Deaf, MW=Muscular Weakness  
S=Sitting, BN=Bending, SE=Seeing, RW=Reading & Writing, C=Communication, MF=Manipulation by Fingers,  
PP=Pulling & Pushing, L=Lifting, KC=Kneeling & Crouching, ST=Standing, W=Walking, H=Hearing, JU=Jumping,  
H(Acceptable with Hearing Aids=Should be able to hear upto 25 decibel.OH=Orthopaedically Handicapped,  
LD=Locomotor Disability, CP=Cerebral Palsy.

**NOTE (i):** To avoid inconvenience later PH candidates should ensure that their sub-category of disabilities is identified for providing reservation.

**NOTE (ii) :** Also please note that Temporary Certificate of Disability does not confer upon the candidates, the benefit of being considered against the vacancies reserved under PH quota.

**NOTE (iii) :** Please ensure submission of Certificate of Disability in the prescribed format as detailed at Annexure-III.

### Annexure-II

#### Details of Zonal Railway Hospitals

<u>Zone Full</u>	<u>Name of Hospital</u>	<u>Hospital Address</u>	<u>Telephone Nos.</u>
CENTRAL RAILWAYS	B.A.M. HOSPITAL	DR. BABA SAHAB AMBEDKAR RAILWAY HOSPITAL, BYCULLA, MUMBAI-400027	
EASTERN RAILWAY	B.R. SINGH HOSPITAL	B.R. SINGH HOSPITAL, SEALDAH, KOLKATA – 700001	
EAST CENTRAL RAILWAY	CENTRAL HOSPITAL	EC RAILWAY, KARBIGAHIYA, PATNA – 803118	
EAST COAST RAILWAY	CENTRAL HOSPITAL	MANCHESWAR, BHUBANESWAR- 751017	
NORTHERN RAILWAY	CENTRAL HOSPITAL	BASANT LANE, CHELMSFORD ROAD, CONNAUGHT PLACE, DELHI – 110001	
NORTH CENTRAL RAILWAY	CENTRAL HOSPITAL	ALLAHABAD – 211001	

NORTH EASTERN RAILWAY	LNMR HOSPITAL	LALIT NARAYAN MISHRA HOSPITAL, GORAKHPUR-273012	
NORTH EAST FRONTIER RAILWAY	CENTRAL HOSPITAL	MALIGAON, GUWAHATI – 781011	
NORTH WESTERN RAILWAY	CENTRAL HOSPITAL	GANPATI NAGAR, NEAR JAIPUR RAILWAY STATION, JAIPUR- 302006	
SOUTHERN RAILWAY	CENTRAL HOSPITAL	CONSTABLE ROAD, AYANAVARAM, PERAMBUR, CHENNAI – 600209	
SOUTH CENTRAL RAILWAY	CENTRAL HOSPITAL	LALAGUDA RAILWAY COLONY, SECUNDERABAD-500003	
SOUTH EASTERN RAILWAY	CENTRAL HOSPITAL	GARDEN REACH ROAD, KOLKATA – 700043	
SOUTH EAST CENTRAL RAILWAY	CENTRAL HOSPITAL	BILASPUR – 495004	
SOUTH WESTERN RAILWAY	CENTRAL HOSPITAL	GADAG ROAD, HUBLI – 580023	
WESTERN RAILWAY	J.R.H. HOSPITAL	JAGJIVAN RAM HOSPITAL, MARATHA MANDIR MARG, MUMBAI CENTRAL, MUMBAI – 400001	
WEST CENTRAL RAILWAY	CENTRAL HOSPITAL	INDIRA MARKET, JABALPUR - 482001	

Other additional instructions to the candidates for medical examination are as under:-

- (i) Medical Examination Schedules/Venue and the final medical status (Fit/Unfit/partially Unfit/Temporarily Unfit) will be uploaded on the official website of the Indian Railways ([www.indianrailways.gov.in](http://www.indianrailways.gov.in)). No separate written communication will be sent to the candidates regarding these uploads.
- (ii) The candidates will have to carry three sets of Form for Medical Board Report-2021 to be downloaded from the Ministry of Railways official website i.e. [Min of of Railways>>Railway Board>>News and Recruitment>>Engineering Services Updates](#).
- (iii) The candidates should carry Government issued Photo ID card and three passport size photographs with them. Candidates recommended against Persons with Benchmark Disabilities (PwBD) vacancies should carry their Certificate of Disability in original as per the format prescribed along with additional photocopy of the same.

### Annexure-III

#### Form-V

#### Certificate of Disability

(In cases of amputation or complete permanent paralysis of limbs or dwarfism and in case of blindness)

[See rule 18(1)]

(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size  
attested photograph  
(Showing face only) of  
the person with  
benchmark disability.

Certificate No. \_\_\_\_\_

Date: \_\_\_\_\_

This is to certify that I have carefully examined Shri/Smt./Kum.

\_\_\_\_\_ son/wife/daughter of Shri \_\_\_\_\_ Date of Birth (DD/MM/YY)

\_\_\_\_\_ Age \_\_\_\_\_ years, male/female \_\_\_\_\_ registration No. \_\_\_\_\_ permanent resident  
of House No. \_\_\_\_\_ Ward/Village/Street \_\_\_\_\_ Post Office \_\_\_\_\_ District \_\_\_\_\_  
State \_\_\_\_\_, whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of:

- locomotor disability
- dwarfism
- blindness

(Please tick as applicable)

(B) the diagnosis in his/her case is \_\_\_\_\_

(A) he/she has \_\_\_\_\_ % (in figure) \_\_\_\_\_ percent (in words) permanent locomotor disability/dwarfism/blindness in relation to his/her \_\_\_\_\_ (part of body) as per guidelines ( .....number and date of issue of the guidelines to be specified).

2. The applicant has submitted the following document as proof of residence:-

Nature of Document	Date of Issue	Details of authority issuing certificate

(Signature and Seal of Authorised Signatory of notified Medical Authority)

Signature/thumb impression of the person in whose favour certificate of disability is issued

**Form - VI**

Certificate of Disability  
(In cases of multiple disabilities)

[See rule 18(1)]

(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size attested photograph (Showing face only) of the person with benchmark disability.

Certificate No. \_\_\_\_\_

Date: \_\_\_\_\_

This is to certify that we have carefully examined Shri/Smt./Kum.

\_\_\_\_\_ son/wife/daughter of Shri \_\_\_\_\_ Date of Birth (DD/MM/YY) \_\_\_\_\_ Age \_\_\_\_\_ years, male/female \_\_\_\_\_.

Registration No. \_\_\_\_\_ permanent resident of House No. \_\_\_\_\_ Ward/Village/Street \_\_\_\_\_

Post Office \_\_\_\_\_ District \_\_\_\_\_ State \_\_\_\_\_, whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of Multiple Disability. His/her extent of permanent physical impairment/disability has been evaluated as per guidelines (.....number and date of issue of the guidelines to be specified) for the disabilities ticked below, and is shown against the relevant disability in the table below:

S. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Dwarfism			
5.	Cerebral Palsy			
6.	Acid attack Victim			
7.	Low vision	#		
8.	Blindness	#		
9.	Deaf	£		
10.	Hard of Hearing	£		
11.	Speech and Language			

	disability			
12.	Intellectual Disability			
13.	Specific Learning Disability			
14.	Autism Spectrum Disorder			
15.	Mental illness			
16.	Chronic Neurological Conditions			
17.	Multiple sclerosis			
18.	Parkinson’s disease			
19.	Haemophilia			
20.	Thalassemia			
21.	Sickle Cell disease			

(B) In the light of the above, his/her over all permanent physical impairment as per guidelines (.....number and date of issue of the guidelines to be specified), is as follows : -

In figures : - ..... percent

In words :- ..... percent

2. This condition is progressive/non-progressive/likely to improve/not likely to improve.

3. Reassessment of disability is :

(i) not necessary,

or

(ii) is recommended/after ..... years ..... months, and therefore this certificate shall be valid till ---- ----  
- -----

(DD) (MM) (YY)

@ e.g. Left/right/both arms/legs

# e.g. Single eye

£ e.g. Left/Right/both ears

4.The applicant has submitted the following document as proof of residence:-

Nature of document	Date of issue	Details of authority issuing certificate

5. Signature and seal of the Medical Authority.

Name and Seal of Member	Name and Seal of Member	Name and Seal of the Chairperson

Signature/thumb impression of the person in whose favour certificate of disability is issued.
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**Form – VII**

Certificate of Disability  
(In cases other than those mentioned in Forms V and VI)  
(Name and Address of the Medical Authority issuing the Certificate)  
(See rule 18(1))

Recent passport size attested  
photograph (Showing face only)  
of the person with disability

Certificate No. \_\_\_\_\_ Date: \_\_\_\_\_

This is to certify that I have carefully examined

Shri/Smt/Kum \_\_\_\_\_ son/wife/daughter of  
Shri \_\_\_\_\_ Date of Birth (DD/MM/YY) \_\_\_\_\_ Age \_\_\_\_\_  
years, male/female \_\_\_\_\_ Registration No. \_\_\_\_\_ permanent resident of House No. \_\_\_\_\_  
Ward/Village/Street \_\_\_\_\_ Post Office \_\_\_\_\_ District \_\_\_\_\_ State \_\_\_\_\_

\_\_\_\_\_, whose photograph is affixed above, and am satisfied that he/she is a case of  
\_\_\_\_\_ disability. His/her extent of percentage physical impairment/disability has been  
evaluated as per guidelines (.....number and date of issue of the guidelines to be specified) and is shown against the  
relevant disability in the table below:-

S. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Cerebral Palsy			
5.	Acid attack Victim			
6.	Low vision	#		
7.	Deaf	€		
8.	Hard of Hearing	€		
9.	Speech and Language disability			
10.	Intellectual Disability			
11.	Specific Learning Disability			
12.	Autism Spectrum Disorder			
13.	Mental illness			
14.	Chronic Neurological Conditions			
15.	Multiple sclerosis			
16.	Parkinson's disease			
17.	Haemophilia			
18.	Thalassemia			
19.	Sickle Cell disease			

(Please strike out the disabilities which are not applicable)

2. The above condition is progressive/non-progressive/likely to improve/not likely to improve.

3. Reassessment of disability is:

(i) not necessary, or

(ii) is recommended/after \_\_\_\_\_ years \_\_\_\_\_ months, and therefore this certificate shall be valid till (DD/MM/YY) \_\_\_\_\_

@ - eg. Left/Right/both arms/legs

# - eg. Single eye/both eyes

€ - eg. Left/Right/both ears

4. The applicant has submitted the following document as proof of residence:-

Nature of document	Date of issue	Details of authority issuing certificate

(Authorised Signatory of notified Medical Authority)  
(Name and Seal)

Countersigned  
{Countersignature and seal of the  
Chief Medical Officer/Medical Superintendent/  
Head of Government Hospital, in case the  
Certificate is issued by a medical authority who is  
not a Government servant (with seal)}

Signature/thumb impression of the person in whose favour certificate of disability is issued
--

**Note.-** In case this certificate is issued by a medical authority who is not a Government servant, it shall be valid only if countersigned by the Chief Medical Officer of the District.

#### Appendix-IV

##### Certificate regarding physical limitation in an examinee to write.

This is to certify that, I have examined Mr./Ms./Mrs. ....(name of the candidate with benchmark disability), a person with ....(nature and percentage of disability as mentioned in the certificate of disability), S/o/D/o ....., a resident of ....(Village/District/State) and to state that he/she has physical limitation which hampers his/her writing capabilities owing to his/her disability.

**Signature**  
**Chief Medical Officer/Civil Surgeon/**  
**Medical Superintendent of a Government Health Care Institution.**

Note : Certificate should be given by a specialist of the relevant stream/disability (eg. Visual Impairment Ophthalmologist, Locomotor disability-Orthopedic specialist/PMR).

#### Appendix-V

##### **Letter of Undertaking for Using Own Scribe (To be filled by the candidates online to the Commission)**

I ....., a candidate with ..... (name of the disability) appearing for the ..... (name of the examination) .....bearing Roll No. .... at ..... (name of the centre) in the District ..... (name of the State). My qualification is ..... I do hereby state that ..... (name of the scribe) will provide the service of scribe/reader/lab assistant for the undersigned for taking the aforesaid examination. I do hereby undertake that his qualification is ..... In case, subsequently it is found that his/her qualification is not as declared by the undersigned and is beyond my qualification, I shall forfeit my right to the post and claims thereto.

(Signature of the candidate with Disability)

Place :

Date :