



# UNION PUBLIC SERVICE COMMISSION

Examination Notice No.01/2018-ENGG.

Dated 27.09.2017

(LAST DATE FOR SUBMISSION OF APPLICATIONS : 23.10.2017)

ENGINEERING SERVICES EXAMINATION, 2018

(COMMISSION'S WEBSITE - [www.upsc.gov.in](http://www.upsc.gov.in))

## **IMPORTANT**

### **1. CANDIDATES TO ENSURE THEIR ELIGIBILITY FOR THE EXAMINATION:**

The candidates applying for the examination should ensure that they fulfil all eligibility conditions for admission to the Examination. Their admission at all the stages of the examination will be purely provisional subject to satisfying the prescribed eligibility conditions.

**Mere issue of e-Admission Certificate to the candidate will not imply that his/her candidature has been finally cleared by the Commission.** Commission take up verification of eligibility conditions with reference to original documents only after the candidate has qualified for Personality Test.

### **2. HOW TO APPLY**

**Candidates are required to apply Online only by using the website [www.upsconline.nic.in](http://www.upsconline.nic.in).** Brief instructions are given in Appendix-II. Detailed instructions for filling up online applications are available on the above mentioned website.

### **3. LAST DATE FOR SUBMISSION OF APPLICATIONS :**

The Online Applications can be filled upto **23<sup>rd</sup> October, 2017 (23.10.2017)** till **18.00 Hours** after which the link will be disabled.

**4. The eligible candidates shall be issued an e-Admission Certificate three weeks before the commencement of the examination. The e-Admission Certificate will be made available in the UPSC website [[www.upsc.gov.in](http://www.upsc.gov.in)] for downloading by candidates. No Admission Certificate will be sent by post. All the applicants are requested to provide valid & active e-mail i.d. while filling up online application form as the Commission may use electronic mode for contacting them.**

### **5. PENALTY FOR WRONG ANSWERS (in Objective Type Papers) :**

Candidates should note that there will be penalty (**Negative Marking**) for wrong answers marked by a candidate in the Objective Type Question Papers.

### **6. FACILITATION COUNTER AND WEBSITE FOR GUIDANCE OF CANDIDATES:**

In case of any guidance/information/clarification regarding their applications, candidature etc., candidates can contact UPSC's Facilitation Counter near Gate 'C' of its campus in person or over **Telephone Nos.011-23385271/011-23381125/011-23098543** on working days between 10.00 hrs. and 17.00 hrs. The Commission also has Website at address: [www.upsc.gov.in](http://www.upsc.gov.in) over which the candidates can obtain details of the examination as well as information about registration of their applications, venue of the examination and results etc.

### **7. SPECIAL INSTRUCTIONS:**

Candidates are advised to read carefully "Special Instructions to the candidates for Conventional Type Tests and Objective Type Tests" (Appendix III Part A and Part B). For both writing and marking answers in the OMR sheet [Answer Sheet] in objective type papers, candidates must use black ball pen only. Pens with any other colours are prohibited. Do not use Pencil or ink pen.

Candidates should note that any omission/mistake/discrepancy in encoding/filling of details in the OMR answer sheet, especially with regard to Roll Number and Test Booklet Series code, will render the answer sheet liable for rejection.

Candidates in the Category of visually impaired are advised not to apply for this examination as no vacancies are earmarked/identified for them for the Services/Posts included in Engineering Services Examination, 2018.

### **8. MOBILE PHONES NOT PERMITTED :**

(a) Mobiles phones, pagers, bluetooth or any other communication devices are not allowed inside the premises where the examination is being conducted. Any infringement of these instructions shall entail disciplinary action including ban from future examinations.

(b) Candidates are advised in their own interest not to bring any of the banned items including mobile phones/pagers or any valuable/costly items to the venue of the examination, as arrangements for safekeeping cannot be assured. Commission will not be responsible for any loss in this regard.

**CANDIDATES ARE REQUIRED TO APPLY ONLY THROUGH ONLINE MODE**

**"Government strives to have a workforce which reflects gender balance and women candidates are encouraged to apply."**

**No.F. 2/2/2017-E.I(B):** Preliminary/Stage-I Examination of the Engineering Services Examination for recruitment to the services/ posts mentioned in para 2 below will be held by the Union Public Service Commission on **7<sup>th</sup> January, 2018** in accordance with the Rules published by Ministry of Railways in the Gazette of India Extraordinary dated **27<sup>th</sup> September, 2017**.

**2. (A)** Recruitment on the results of this examination will be made to the Services/ Posts under the following categories:-

**Category I-Civil Engineering.**

**Category II-Mechanical Engineering.**

**Category III-Electrical Engineering.**

**Category IV-Electronics & Telecommunication Engineering.**

The number of vacancies to be filled on the results of the examination is expected to be approximately **588** including 18 PH(LDCP-15 & HI-03) vacancies. The number of vacancies is liable to alteration.

Reservations will be made for candidates belonging to Scheduled Castes, Scheduled Tribes, Other Backward Classes and Physically Disabled Category in respect of vacancies as may be fixed by the Government of India.

#### **CATEGORY I—CIVIL ENGINEERING**

##### **Group-A Services/Posts**

- (i) Indian Railway Service of Engineers.
- (ii) Indian Railway Stores Service (Civil Engineering Posts).
- (iii) Indian Ordnance Factories Service AWM/JTS (Civil Engineering Post)
- (iv) Central Engineering Service (Roads), Group-A (Civil Engineering Posts).
- (v) Central Water Engineering Service Gr 'A' (Civil Engineering Posts).
- (vi) AEE(Civil Engg Posts) in Border Roads Engineering Service Gr 'A'.
- (vii) Indian Defence Service of Engineers.
- (viii) Indian Skill Development Service.

#### **CATEGORY II—MECHANICAL ENGINEERING**

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

- (i) Indian Railway Service of Mechanical Engineers.
- (ii) Indian Railway Stores Service (Mechanical Engineering Posts).
- (iii) Indian Ordnance Factories Service AWM/JTS (Mechanical Engineering Posts).
- (iv) Central Water Engineering Service Gr 'A' (Mechanical Engineering Posts).
- (v) AEE (Mech Engineering Posts) in Border Roads Engineering Service Gr 'A'.
- (vi) Indian Defence Service of Engineers (Mechanical Engineering Posts).
- (vii) AEE Gr 'A' (Mechanical Engineering Posts) in the Corps of EME, Min of Defence.
- (viii) Defence Aeronautical Quality Assurance Service/SSO-II (Mechanical).
- (ix) Central Power Engineering Service Gr 'A' (Mechanical Engineering Posts).
- (x) Indian Skill Development Service.
- (xi) Indian Naval Armament Service
- (xii) Asstt. Naval Store Officer Grade-I (Mech. Engg. Posts) in Indian Navy
- (xiii) Central Power Engineering Service Gr 'B' (Mechanical Engineering Posts).

#### **CATEGORY III—ELECTRICAL ENGINEERING**

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

- (i) Indian Railway Service of Electrical Engineers.
- (ii) Indian Railway Stores Service (Electrical Engineering Posts).
- (iii) Indian Ordnance Factories Service AWM/JTS (Electrical Engineering Posts).

- (iv) Indian Defence Service of Engineers (Electrical Engineering Posts).
- (v) AEE Gr 'A' (Electrical Engg. Posts) in Corps of EME, Min of Defence.
- (vi) Defence Aeronautical Quality Assurance Service/SSO-II (Electrical)
- (vii) Central Power Engineering Service Gr 'A' (Electrical Engineering Posts).
- (viii) Indian Skill Development Service.
- (ix) Indian Naval Armament Service
- (x) Asstt. Naval Store Officer Grade-I (Electrical Engg. Posts) in Indian Navy.
- (xi) Central Power Engineering Service Gr 'B' (Electrical Engineering Posts)

#### **CATEGORY IV—ELECTRONICS AND TELECOMMUNICATION ENGINEERING**

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

- (i) Indian Railway Service of Signal Engineers.
- (ii) Indian Railway Stores Service (Telecommunication/Electronics Engineering Posts).
- (iii) Indian Radio Regulatory Service Gr 'A'.
- (iv) Indian Ordnance Factories Service AWM/JTS (Electronics and Telecom Engineering Posts).
- (v) AEE Gr 'A' (Electronics & Telecom Engineering Posts) in Corps of EME, Min of Defence.
- (vi) Defence Aeronautical Quality Assurance Service/SSO-II (Electronics & Telecom.)
- (vii) Central Power Engineering Service Gr 'A' (Electronics and Telecom Engineering Posts).
- (viii) Indian Telecommunication Service Gr 'A'.
- (ix) Indian Skill Development Service.
- (x) Indian Naval Armament Service
- (xi) Asstt. Naval Store Officer Grade-I (Electronics & Telecom Engg. Posts) in Indian Navy.
- (xii) Central Power Engineering Service Gr 'B' (Electronics and Telecom Engineering Posts).
- (xiii) Junior Telecom Officer Gr 'B'.

**Note:-** Recruitment to the Services/Posts mentioned above will be made on the basis of the scheme(s) of examination prescribed in Appendix-I to the Notice. Candidates who are declared qualified on the result of Preliminary/Stage-I Examination will be required to indicate their preference for Services/Posts at the appropriate time in the Detailed Application Form.

**N.B. (i)** —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.

**N.B. (ii)**—Candidates admitted to the examination under the proviso to para 3(III) will be considered only for the posts mentioned in the said proviso and their preference for other Services and Posts, if any, will be ignored.

**N.B. (iii)**—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.

**2(A)** A candidate may apply for admission to the examination in respect of anyone of the categories of the Services/Posts mentioned in para 2 above viz. Civil Engineering or Mechanical Engineering or Electrical Engineering or Electronics & Telecommunication Engineering.

##### **2(B) (i) Centres of Engineering Services (Preliminary) Examination:**

AGARTALA	CHENNAI	ITANAGAR	MUMBAI	SHIMLA
AHMEDABAD	CUTTACK	JAIPUR	NAGPUR	SRINAGAR
AIZAWL	DEHRADUN	JAMMU	PANAJI (GOA)	THIRUVANANTHAPURAM
ALIGARH	DELHI	JORHAT	PATNA	TIRUPATI
ALLAHABAD	DHARWAD	KOCHI (COCHIN)	PORT BLAIR	UDAIPUR
BANGALORE	DISPUR(GUWAHATI)	KOHIMA	RAIPUR	VISHAKHAPATNAM
BAREILLY	GANGTOK	KOLKATA	RANCHI	
BHOPAL	HYDERABAD	LUCKNOW	SAMBALPUR	
CHANDIGARH	IMPHAL	MADURAI,	SHILLONG	

##### **(B)(ii) Centres for Engineering Services (Main) Examination:-**

AHMEDABAD	CHANDIGARH	DISPUR(GUWAHATI)	LUCKNOW	SHILLONG
AIZAWL	CHENNAI	HYDERABAD	MUMBAI	SHIMLA
ALLAHABAD	CUTTACK	JAIPUR	PATNA	THIRUVANANTHAPURAM
BANGALORE	DEHRADUN	JAMMU	RAIPUR	VISHAKHAPATNAM
BHOPAL	DELHI	KOLKATA	RANCHI	

THE CENTRES AND THE DATE OF HOLDING THE EXAMINATION AS MENTIONED ABOVE ARE LIABLE TO BE CHANGED AT THE DISCRETION OF THE COMMISSION.

Applicants should note that there will be a ceiling on the number of candidates allotted to each of the centres except Chennai, Delhi, Dispur, Kolkata and Nagpur. Allotment of Centres will be on the first-apply-first-allot basis and once the capacity of a particular centre is attained, the same will be frozen. Applicants, who cannot get a centre of their choice due to ceiling, will be required to choose a centre from the remaining ones. Applicants are, thus, advised that they may apply early so that they could get a Centre of their choice.

NB : Notwithstanding the aforesaid provision, Commission reserve the right to change the Centres at their discretion if the situation demands.

CANDIDATES ADMITTED TO THE EXAMINATION WILL BE INFORMED OF THE TIME TABLE AND PLACE OR PLACES OF EXAMINATION.

The candidates should note that no request for change of centre will be entertained.

### 3. ELIGIBILITY CONDITIONS

(I) Nationality:

A candidate must be either:

- a citizen of India, or
- a subject of Nepal, or
- a subject of Bhutan, or
- a Tibetan refugee who came over to India before the 1<sup>st</sup> January, 1962 with the intention of permanently settling in India, or
- a person of Indian origin who has migrated from Pakistan, Burma, Sri Lanka or East African countries of Kenya, Uganda, the United Republic of Tanzania, Zambia, Malawi, Zaire and Ethiopia or from 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.

(II) Age Limits:

(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> August, 2018 i.e., he/she must have been born not earlier than 2<sup>nd</sup> August, 1988 and not later than 1<sup>st</sup> August, 1997.

(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> August, 2018.

Column 1	Column 2
Ministry of Railways (Railway Board)	I.R.S.E. I.R.S.M.E. I.R.S.E.E. I.R.S.S.E. I.R.S.S.
Directorate General Ordnance Factories	I.O.F.S. Group 'A'
Central Electricity Authority	C.P.E.S. Gr 'A' & C.P.E.S. Gr 'B'
Ministry of Road Transport and Highways	Central Engineering Service (Roads) Gr. 'A'

Ministry of Telecommunication and Information Technology, Deptt. of Telecommunication	Engineer in Indian Radio Regulatory Service Gr 'A' Indian Telecommunication Service Group 'A', J.T.O. (G.C.S. Gr. 'B')
Central Water Commission	Central Water Engineering Service Gr 'A'
Border Roads Organisation	BRES Gr. 'A'
Military Engineer Services	Indian Defence Service of Engineers (IDSE) Group 'A'
The Corps of Electronics and Mechanical Engineering, Min of Defence.	AEE Gr 'A' (Elect. Engg. Posts) in Corps of EME, Min of Defence.
Min of Defence, Deptt. of Defence Production, Directorate General of Aeronautical Quality Assurance	Defence Aeronautical Quality Assurance Service (DAQAS) Gr 'A'
Ministry of Skill Development & Entrepreneurship	Indian Skill Development Service
Indian Navy	Indian Naval Armament Service, Asstt. Naval Store Officer Grade-I

**Note.**— The period of apprenticeship if followed by appointment against a working post on the Railways may be treated as Railway Service for the purpose of age concession.

(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. The closing date fixed for the receipt of the application will be treated as the date for determining the OBC status (including that of creamy layer) of the candidates.
- (iii) Up to maximum of five years if a candidate had ordinarily been domiciled in the State of Jammu and Kashmir during the period from the 1st January, 1980 to the 31st day of December, 1989.
- (iv) 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.
- (v) 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> August, 2018** and have been released (i) on completion of assignment (including those whose assignment is due) to be completed within one year from **1<sup>st</sup> August, 2018** 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.
- (vi) 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> August, 2018** 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.
- (vii) Up to a maximum of 10 years in the case of deaf-mute and Orthopedically handicapped persons.

**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 Para 3(II)(c) above, viz., those coming under the category of Ex-servicemen, persons domiciled in the State of J&K, deaf-mute and orthopedically handicapped etc. 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 Para 3(ii)(c)(v) and (vi) will not be admissible to Ex-Servicemen and Commissioned Officers including ECOs/SSCOs, who are released on own request.

**Note IV :** Notwithstanding the provision of age relaxation under Para 3(ii)(c)(vii) above, a physically handicapped candidate 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 physically handicapped candidate by the Government.

**Note V :** 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. 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.

**Candidates seeking reservation/relaxation benefits available for SC/ST/OBC/PH/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 or any other prima-facie proof in support of his/her claim in case of having a genuine difficulty of obtaining a certificate issued by the competent authority in support of his/her claim of reservation benefit. (Prescribed Format of Disability Certificate should be submitted by**

**Physically Handicapped candidates as per Form IV of Department of Personnel & Training's Office Memorandum No. 36035/1/2012-Estt.(Res.) dated 29.11.2013 as at Annexure-III).**

While the above principle will be followed in general, there may be a few cases where there was a little gap (say 2-3 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.

**N.B.—**The candidature of a person who is admitted to the examination under the age concession mentioned in Para 3(II)(b) above shall be cancelled if, after submitting his/her application he/she resigns from service or his/her services are terminated by his/her department/office either before or after taking the examination. He/she will, however, continue to be eligible if he/she is retrenched from the service or post after submitting his/her application. A candidate who after submitting his/her application to the department is transferred to other department/office will be eligible to compete under departmental age concession.

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 an Indian University as equivalent to Matriculation or in an extract from a Register of 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. These certificates are required to be submitted along with the Detailed Application Forms which will be required to be submitted by the candidates who qualify on the result of the written part of the examination.

No other document relating to age like horoscopes, affidavits, birth extracts from Municipal Corporation, service records and the like will be accepted. The expression Matriculation/Secondary Examination Certificate in this part of the instruction includes 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 CLAIMED BY THEM 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.

**NOTE 3:-** CANDIDATES SHOULD EXERCISE DUE CARE WHILE ENTERING THEIR DATE OF BIRTH IN THE RESPECTIVE COLUMN OF THE APPLICATION FORM. IF ON VERIFICATION AT ANY SUBSEQUENT STAGE, ANY VARIATION IS FOUND IN THEIR DATE OF BIRTH FROM THE ONE ENTERED IN THEIR MATRICULATION OR EQUIVALENT EXAMINATION CERTIFICATE, DISCIPLINARY ACTION WILL BE TAKEN AGAINST THEM BY THE COMMISSION UNDER THE RULES.

**(III) Minimum Educational Qualification:**

For admission to the examination, 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 Institutions established by an Act of Parliament or declared to be deemed as Universities 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 post of Indian Naval Armament Service (Electronics Engineering Posts) and Indian Radio Regulatory Service Gr '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 – M.Sc. degree or its equivalent with Wireless Communication Electronics, Radio Physics or Radio Engineering as a special subject or Master's Degree in Science with Physics and Radio Communication or Electronics or Telecommunication as a special subject.

**NOTE-1** A candidate who has appeared at an examination the passing of which would render him/her 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 written part of the examination.

**NOTE-2** 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/she has passed examinations conducted by other institutions the standard of which in the opinion of the Commission justifies his/her admission to the examination.

**NOTE-3** 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.

#### **(IV) Medical Examination**

**Candidates finally recommended** by the Commission on the basis of Engineering Services Examination, 2018 shall be required to undergo medical examination.

(a) Every candidate, on being finally recommended by Commission will be required to undergo medical examination as and when so decided by the Ministry of Railways (Railway Board) irrespective of the fact that he/she has appeared for such medical examination in the past and found fit/unfit on the basis of earlier examination.

(b) The medical examination will be conducted at various Railway Hospitals under Ministry of Railways (Railway Board). Other additional instructions for candidates are listed at Annexure-II. The findings of the Railways Medical Board will be taken as final and binding for all allotment purposes.

#### **(V) Physical standards**

Candidates must be physically fit according to physical standards for admission to **Engineering Services Examination, 2018** as per guidelines given in Appendix-II of the Rules for the **Engineering Services Examination, 2018** published in the Gazette of India Extraordinary dated **27.09.2017**.

#### **4. FEE:**

Candidates (excepting Female/SC/ST/ PH who are exempted from payment of fee) are required to pay a fee of **Rs. 200/- (Rupees Two hundred only)** either by depositing the money in any Branch of SBI by cash or by using net banking facility of State Bank of India **or by using Visa/Master Credit/Debit card.**

**Note : 1** Applicants who opt for "**Pay by cash**" mode should print the system generated Pay-in slip during Part-II registration and deposit the fee at the counter of SBI Branch on the next working day only. "**Pay by cash**" mode option will be deactivated at 23.59 hours of **22.10.2017** i.e. **one day before the closing date** ; however, applicants who have generated their Pay-in-slip before it is de-activated may pay at the counter of SBI Branch during banking hours on the closing date. Such applicants who are unable to pay by cash on the closing date i.e. during banking hours to SBI Branch, for reason whatsoever, even if holding a valid Pay-in-slip, will have no other offline option but to opt for online Debit/Credit Card or Internet Banking Payment mode **on the closing date i.e. till 18.00 hours of 23.10.2017.**

**Note : 2** Candidates should note that payment of examination fee can be made only through the modes prescribed above. Payment of fee through any other mode is neither valid nor acceptable. Applications submitted without the prescribed fee/mode (unless remission of fee is claimed) shall be summarily rejected.

**Note : 3** Fee once paid shall not be refunded under any circumstances nor can the fee be held in reserve for any other examination or selection.

**Note : 4** For the applicants in whose case payments details have not been received from the bank, they will be treated as fictitious payment cases and their applications will be rejected in the first instance. A list of all such applicants shall be made available on the Commission website within two weeks after the last day of submission of online application. The applicants shall be required to submit the proof of their fee payment within 10 days from the date of such communication either by hand or by speed post to the Commission. On receipt of documentary proof, genuine fee payment cases will be considered and their applications will be revived, if they are other- wise eligible.

ALL FEMALE CANDIDATES AND CANDIDATES BELONGING TO SCHEDULED CASTES/SCHEDULED TRIBES/PHYSICALLY HANDICAPPED CATEGORIES ARE EXEMPTED FROM PAYMENT OF FEE. NO FEE EXEMPTION IS, HOWEVER, AVAILABLE TO OBC CANDIDATES AND THEY ARE REQUIRED TO PAY THE PRESCRIBED FEE IN FULL.

Physically handicapped persons are exempted from the payment of fee provided they are otherwise eligible for appointment to the Services/Posts to be filled on the results of this examination on the basis of the standards of medical fitness for these Services/Posts (including any concessions specifically extended to the physically handicapped). A physically handicapped candidate claiming age relaxation/fee concession will be required by the Commission to submit along with their Detailed Application Form, a certified copy of the certificate from a Government hospital/Medical Board in support of his claim for being physically handicapped.

**NOTE:** Notwithstanding the aforesaid provision for age relaxation/fee exemption, a physically handicapped candidate will be considered to be eligible for appointment only if he/she (after such physical examination as the Government or the appointing authority, as the case may be, may prescribe) is found to satisfy the requirements of physical and medical standards for the concerned Services/Posts to be allocated to Physically Handicapped candidates by the Government.

**NOTE :** Applications without the prescribed fee (unless remission of fee is claimed) shall be summarily rejected.

#### **5. HOW TO APPLY:**

(a) Candidates are required to apply Online using the link **www.upsc online.nic.in**. Detailed instructions for filling up online applications are available on the above mentioned website.

(b) The applicants are advised to submit only single application; however, if due to any unavoidable situation, if he/she submits another/multiple applications, then he/ she must ensure that application with the higher RID is complete in all respects like applicants' details, examination centre, photograph, signature, fee etc. The applicants who are

submitting multiple applications should note that only the applications with higher RID (Registration ID) shall be entertained by the Commission and fee paid against one RID shall not be adjusted against any other RID.

(c) All candidates, whether already in Government Service, or in Government owned industrial undertakings or other similar organisations or in private employment, should apply online direct to the Commission.

Persons, already in Government service whether in a permanent or temporary capacity or as work-charged employees other than casual or daily rated employees or those serving under public enterprises are, however, required to inform their Head of Office/Department that they have applied for the Examination. Candidates should note that in case 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.

**NOTE 1 : WHILE FILLING IN HIS/HER APPLICATION FORM, THE CANDIDATE SHOULD CAREFULLY DECIDE ABOUT HIS/HER CHOICE FOR THE CENTRE AND ENGINEERING DISCIPLINE FOR THE EXAMINATION.**

**IF ANY CANDIDATE APPEARS AT A CENTRE/ENGINEERING DISCIPLINE OTHER THAN THE ONE INDICATED BY THE COMMISSION IN HIS/HER E- ADMISSION CERTIFICATE PAPERS OF SUCH A CANDIDATE WILL NOT BE VALUED AND HIS/HER CANDIDATURE WILL BE LIABLE TO CANCELLATION.**

**NOTE 2: SUITABLE PROVISIONS FOR INFORMATION REGARDING USE OF SCRIBES BY THE BLIND CANDIDATES AND CANDIDATES WITH LOCOMOTOR DISABILITY AND CEREBRAL PALSY WHERE DOMINANT (WRITING) EXTREMITY IS AFFECTED TO THE EXTENT OF SLOWING THE PERFORMANCE OF FUNCTION (MINIMUM OF 40% IMPAIRMENT) HAVE BEEN MADE IN THE ONLINE APPLICATION.**

**NOTE 3: INCOMPLETE OR DEFECTIVE APPLICATIONS SHALL BE SUMMARILY REJECTED. NO REPRESENTATION OR CORRESPONDENCE REGARDING SUCH REJECTION SHALL BE ENTERTAINED UNDER ANY CIRCUMSTANCES.**

**CANDIDATES ARE NOT REQUIRED TO SUBMIT HARD COPY/PRINT OUT OF THEIR APPLICATION TO THE COMMISSION AT THIS STAGE.**

6. The candidates applying for the Examination should ensure that they fulfil 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 fulfil any of the eligibility conditions, their candidature of the Examination will be cancelled by the Commission. Candidates are requested to keep ready the attested copies of the following documents for submission to the Commission soon after the declaration of the results of the written Examination.

- (a). Certificate of Age.
- (b). Certificate of Educational Qualification.
- (c). Certificate in support of claim to belong to Scheduled Castes, Scheduled Tribes and Other Backward Classes, wherever applicable.
- (d). Certificate in support of claim for age/ fee concession, wherever applicable.

7. Immediately after the declaration of the results of Main/Stage-II examination, successful candidates will be intimated by the Commission electronically and they shall be asked to submit Detailed Application Form (DAF) online and upload the scanned copies of the above mentioned certificates to the Commission at that time. Originals will have to be produced at the time of Personality Test. The Personality Test letter to the candidates may also be issued electronically.

8. If any of their claims is found to be incorrect, they may render themselves liable to disciplinary action by the Commission in terms of Rule 11 of the Rules for **Engineering Services Examination, 2018 notified in the Gazette of India Extraordinary dated 27<sup>th</sup> September 2017 and also reproduce below:**

A Candidate who is or has been declared by the Commission to be guilty of :—

- (i) obtaining support for his candidatures by any means; or
- (ii) impersonating; or
- (iii) procuring impersonation by any person; or
- (iv) submitting fabricated documents or documents which have been tampered with; or
- (v) making statements which are incorrect or false or suppressing material information; or
- (vi) resorting to any other irregular or improper means in connection with his candidature for the examination; or
- (vii) using unfair means during the examination; or
- (viii) writing irrelevant matter including obscene language or pornographic matter in the script(s); or
- (ix) misbehaving in any other manner in the examination hall; or
- (x) harassing or doing bodily harm to the staff employed by the Commission for the conduct of their examination; or
- (xi) being in possession of or using any cellular/mobile phone/pager/bluetooth or any electronic equipment or device or any, other equipment capable of being used as a communication device during the examination; or
- (xii) violating any of the instructions issued to candidates alongwith their admission certificate permitting them to take the examination; or
- (xiii) attempting to commit or as the case may be abetting the commission of all or any of the acts specified in the foregoing clauses.

May in addition to rendering himself liable to criminal prosecution be liable—

- (a) to be disqualified by the Commission from the examination for which he is a candidate; and/or



- (b) 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
- (c) if he is already in service under the Government, to disciplinary action under the appropriate rules :

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 he may wish to make in that behalf; and
- (ii) taking the representation if any submitted by the candidate, within the period allowed to him, into consideration.

#### **9. LAST DATE FOR SUBMISSION OF APPLICATIONS:**

The Online Applications can be filled upto **23<sup>rd</sup> October 2017 till 18:00 Hours** after which the link will be disabled.

#### **10. CORRESPONDENCE WITH COMMISSION:**

The Commission will not enter into any correspondence with the candidates about their candidature except in the following cases :

(i) The eligible candidates shall be issued an e-Admission Certificate three weeks before the commencement of the examination. The e-Admission Certificate will be made available in the UPSC website [www.upsc.gov.in] for downloading by candidates. No Admission Certificate will be sent by post. For downloading the e- Admission Certificate/ e-Admit Card the Candidate must have his/her vital parameters like RID & Date of Birth or Roll No. (if received & date of birth or father's name) available with him/her .

(ii) If a candidate does not receive his/her e-admit card or any other communication regarding his/her candidature for the examination two week before the commencement of the examination, he/she should at once contact the Commission. Information in this regard can also be obtained from the Facilitation Counter located in the Commission's Office either in person or over phone Nos. 011-23381125/011-23385271/011-23098543. **In case no communication is received in the Commission's Office from the candidate regarding non-receipt of his/her e-Admission Certificate at least one week before the examination, he/she himself/herself will be solely responsible for non-receipt of his/her e-Admission certificate.**

No candidate will ordinarily be allowed to take the examination unless he/she holds e-Admission Certificate for the examination. On receipt of e-Admission Certificate, check it carefully and bring discrepancies/error, if any, to the notice of UPSC immediately.

The candidates should note that their admission to the examination will be purely provisional based on the information given by them in the Application Form. This will be subject to verification of all the eligibility conditions by the UPSC.

(iii) The mere fact that an e- Admission Certificate of admission to the Examination has been issued to a candidate will not imply that his/her candidature has been finally cleared by the Commission, or that the entries made by the candidate in his/her application for the Examination have been accepted by the Commission as true and correct. Candidates may note that the Commission takes up the verification of eligibility conditions of a candidate, with reference to original documents, only after the candidate has qualified for Personality Test on the result of the written part of the examination. Unless candidature is formally confirmed by the Commission, it continues to be provisional.

The decision of the Commission as to the acceptance of the application of a candidate and his/her eligibility or otherwise for admission to the Examination shall be final. Candidates should note that the name in the Admission Certificate, in some cases may be abbreviated due to technical reasons.

(iv) If a candidate receives an e- Admission Certificate in respect of some other candidate on account of handling error, the same should be immediately brought to the notice of Commission with a request to issue the correct e-Admission Certificate. Candidates may note that they will not be allowed to take the examination on the strength of an e-Admission Certificate issued in respect of another candidate.

**(v) Candidates must ensure that their e-mail ids given in their applications are valid and active.**

**IMPORTANT:** ALL COMMUNICATIONS TO THE COMMISSION SHOULD INVARIABLY CONTAIN THE FOLLOWING PARTICULARS:

1. NAME AND YEAR OF THE EXAMINATION.
2. REGISTRATION ID (RID).
3. ROLL NO. (IF RECEIVED).
4. NAME OF CANDIDATE IN FULL AND IN BLOCK LETTERS.
5. VALID AND ACTIVE E-MAIL ADDRESS
6. COMPLETE POSTAL ADDRESS AS GIVEN IN THE APPLICATION.

**N.B. (i) COMMUNICATIONS NOT CONTAINING THE ABOVE PARTICULARS MAY NOT BE ATTENDED TO.**

**N.B.(ii) IF A LETTER/COMMUNICATION IS RECEIVED FROM A CANDIDATE AFTER AN EXAMINATION HAS BEEN HELD AND IT DOES NOT GIVE HIS/HER FULL NAME AND ROLL NUMBER, IT WILL BE IGNORED AND NO ACTION WILL BE TAKEN THEREON.**

#### **11. 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 physically disabled 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 Disability Certificate in the prescribed format as detailed in **Annexure-III**.

12. As per decision taken by the Government for increasing the access of unemployed to job opportunities, the Commission will publically disclose the scores of the candidates (obtained in the Preliminary/Stage-I examination, Main/ Stage-II examination and Interview/Personality Test) through the public portals. The disclosure will be made in respect of only those candidates who will appear in the Interview/Personality Test for the Engineering Services Examination and are not finally recommended for appointment. The information shared through this disclosure scheme about the non-recommended candidates may be used by other public and private recruitment agencies to appoint suitable candidates from the information made available in the public portal.

Candidates will be required to give their options at the time of Interview/Personality Test, while acknowledging the e-summon letter mailed to them for interview. A candidate may opt out of the scheme also and in that case his/her details will not be published by the Commission.

Besides sharing of the information of the non-recommended candidates for the examinations conducted by the Commission, the Commission will not assume any responsibility of liability for the method and manner in which information related to candidates who appear at the Commission's Examinations/Selections is utilized by other private or public organizations.

### Annexure-I

#### **A List of Services/Posts identified suitable for Physically Disabled 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.	Indian Railway Service of Engineers	OA or OL or HI	S,ST,BN,W,SE,MF,C,R,W&RW
2.	Indian Railway Stores Service	OA or OL or HI	S,ST,BN,W,SE,MF,C,R,W&RW
3.	Central Engineering Service	OA or OL or HI	As per MOSJ & E instructions
4.	Indian Defence Service of Engineers (Civil Engg.)	PD or OA	B,S,ST,W,SE,H&RW
5.	Indian Ordnance Factories Service(Civil) (Engg. Br.)	OA or PD	B,S,ST,W,SE&H
6.	Central Water Engineering Service Gr 'A'	OA or OL	S,ST,BN,W,SE,MF,C,R,W&RW
7.	Central Engineering Service (Roads) Gr. A	OA or OL or PD/HI	B,S,ST,W,SE,H,RW,D,&W
8.	AEE in P & T Build. Works Gr. A	OA	MF,PP,L,KC,BN,S,ST,W,SE,H&RW
9.	AEE (Civil) in Border Roads Organization	OA	B,S,ST,W,SE,H&RW
10.	AEE (QS&C) in Military Engineer Service(MES) Surveyor Cadre	PD or OA	B,S,ST,W,SE,H&RW
11	Indian Skill Development Service	OA or OL	As per MOSJ & E instructions
<b>Category II-Mechanical Engineering</b>			
1.	Indian Railway Service of Mechanical Engineers	OA or OL	S,ST,BN,W,SE,ME,C,R,W&RW
2.	Indian Railway Store Service	OA or OL or HI	S,ST,BN,W,SE,ME,C,R,W&RW
3.	Central Water Engineering Service Gr 'A'	OA or OL	S,ST,BN,W,SE,MF,C,R,W&RW
4.	Central Power Engg. Service Gr. A&B (Mech. Engg. Posts)	OL	ST,S,SE,MF,BN,KC,H&C
5.	Indian Ordnance Factories Service (Mech. Engg. Branch)	HI(PD) or OA or OL	B,SE,H&W
6.	Indian Naval Armament Service	OL	S,SE,H&RW
7.	Assistant Executive Engr. in the corps of EME	PD	F,PP,L,KC,B,S,ST,W,SE&RW
8.	Asstt. Naval Store Officer in Indian Navy	OL	S,SE,H&RW
9.	Central Electrical & Mechanical Engineering Service	OL or HI	As per MOSJ&E instructions
10.	Geological Survey of India Engineering Service Gr 'A'	PD	KC
11.	Indian Defence Service of Engineers (Mech. Engg.)	PD or OA	B,S,ST,B,W,SE,H&RW
12.	Central Engineering Service (Roads) Group 'A' (Mechanical Engg. Post)	OA or OL or PD/HI	B,S,ST,W,SE,H,RW,D,&W
13.	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
14	Indian Skill Development Service	OA or OL	As per MOSJ & E instructions
<b>Category III-Electrical Engineering</b>			

1.	Indian Railway Service of Electrical Engineers	OA or OL or HI	S,ST,BN,W,SE,MF,C,R,W
2.	Indian Railway Store Service	OA or OL or HI	S,ST,BN,W,SE,MF,C,R,W&RW
3.	Central Elect. & Mech. Engg. Service (Elect. Engg.)	OL or HI	As per MOSJ&E instructions
4.	Indian Naval Armament Service	OL	S,SE,H&RW
5.	Indian Ordnance Factories Service (Elect.)	OL or PD	B,ST,W&SE
6.	Central Power Engg. Service Gr. A&B (Elect. Engg. Posts)	OL, HI	S,ST,BN,SE,W,MF,PP,L,KC,C&RW
7.	Indian Defence Service of Engineers (Elect. Engg.)	PD or OA	B,S,ST,W,SE,H&RW
8.	Asstt. Naval Store Officer in Indian Navy	OL	S,SE,H&RW
9.	AEE Gr 'A'(Elect. Engg.) in Corps of EME, Min of Defence.	PD or OA	S,ST,B,W,SE
10.	AEE in P&T Bldg. works Gr. 'A'	OA	MF,PPL,K,C,BN,S,ST,W,SE,H&RW
11.	Indian Skill Development Service	OA or OL	As per MOSJ & E instructions
<b>Category IV-Electronics &amp; Telecommunication Engineering</b>			
1.	Indian Railway Service of Signal Engineers	OA or OL	S,ST,BN,W,SE,MF,C,R,W&RW
2.	Indian Railway Store Service	OA or OL or HI	S,ST,BN,W,SE,MF,C,R,W&RW
3.	Indian Ordnance Factories Service (Engg. Branch)	OL or PD	B,ST,W&SE
4.	Indian Naval Armament Service	OL	S,SE,H&RW
5.	Asstt. Exe. Engineer in the Corps of EME	PD or OA	S,ST,B,W,SE
6.	Indian Radio Regulatory Service Gr 'A'	OA or OL	S,H&RW/Speaking
7.	Asstt. Naval Store Officer Gr. I	OL	S,SE,H&RW
8.	Indian Telecom Service, Group A	OL or OA or MW	F,S,ST,W,SE,H&RW
9.	Junior Telecom Officer Group B in ITS	OL or OA or MW	F,S,ST,W,SE,H&RW
10.	Central Power Engineering Service Gr. A&B (Elec. & Telecom)	OL, HI	S,ST,BN,SE,W,MF,PP,L,KC,C&RW
11.	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.**

**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 Disability Certificate does not confer upon the candidates, the benefit of being considered against the vacancies reserved under PH quota.

**NOTE (III):** Please ensure submission of Disability Certificate 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>Tele. 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-2018 to be downloaded from the Ministry of Railways official website i.e. [www.indianrailway.gov.in](http://www.indianrailway.gov.in)>>Ministry 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 Disabilities (PwD) vacancies should carry their Disability Certificate in original as per the format prescribed along with additional photocopy of the same.

**Annexure-III**

**Form - IV**

**DISABILITY CERTIFICATE**

**(In cases other than those mentioned in Forms II and III)**

**(NAME AND ADDRESS OF THE MEDICAL AUTHORITY ISSUING THE CERTIFICATE)**

**(See Rule 4)**

Recent PP size self 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 \_\_\_\_\_ Age \_\_\_\_\_ years, male/female \_\_\_\_\_

(DD/MM/YY)

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 (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.	Low vision	#		
3.	Blindness	Both Eyes		
4.	Hearing Impairment	\$		
5.	Mental retardation	X		
6.	Mental-illness	X		

(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)

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

# Single eye/both eyes

\$ 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

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

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

Countersigned

{Countersignature and seal of the  
CMO/Medical Superintendent/Head  
of Government Hospital, in case the  
certificate is issued By a medical  
authority who is not a government  
servant (with seal)}

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."

Note : The principal rules were published in the Gazette of India vide notification number S.O. 908(E), dated 31<sup>st</sup> December, 1996.

**9. WITHDRAWAL OF APPLICATIONS:** NO REQUEST FOR WITHDRAWAL OF CANDIDATURE RECEIVED FROM A CANDIDATE AFTER HE/SHE HAS SUBMITTED HIS/HER APPLICATION WILL BE ENTERTAINED UNDER ANY CIRCUMSTANCES.

**(OM PRAKASH)  
UNDER SECRETARY  
UNION PUBLIC SERVICE COMMISSION**

**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 I – 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 time 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 happen 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.

3.1 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).

3.2 The Stage-III will consist of Personality Test carrying 200 Marks.

4.1 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).

4.2 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.

5. 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 **27.09.2017**.

6. 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.

7. Conventional papers must be answered in English. Question paper will be set in English only.

8. 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.

<b>Subject</b>	<b>Duration</b>	<b>Maximum Marks</b>
<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

<b>Subject</b>	<b>Duration</b>	<b>Maximum Marks</b>
<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

<b>Subject</b>	<b>Duration</b>	<b>Maximum Marks</b>
<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
<b>Subject</b>	<b>Duration</b>	<b>Maximum Marks</b>
<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.

<b>Subject</b>	<b>Duration</b>	<b>Maximum Marks</b>
----------------	-----------------	----------------------

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

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

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

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

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

**Note:** 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. However, blind candidates and candidates with Locomotor Disability and Cerebral Palsy where dominant (writing) extremity is affected to the extent of slowing the performance of function (minimum of 40% impairment) will be allowed to write Engineering Services Examination with the help of a scribe.

Compensatory time of twenty minutes per hour shall be permitted for the blind candidates and candidates with Locomotor Disability and Cerebral Palsy where dominant (writing) extremity is affected to the extent of slowing the performance of function (minimum of 40% impairment) will also be allowed in the Engineering Services Examination.



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 Examination/Stage-I, 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 Examination/Stage-I (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 Examination/ Stage-I (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 demodulation, 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/paramagnetic 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/TCP/IP); 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

#### INSTRUCTIONS TO THE CANDIDATES FOR FILLING ONLINE APPLICATIONS

**Candidates must apply Online by using the Website [www.upsconline.nic.in](http://www.upsconline.nic.in). Salient Features of the system of Online Application Form are given here under :**

Detailed instructions for filling up Online Applications are available on the above mentioned website.

Candidates will be required to complete the Online Application Form containing two stages viz. Part-I and Part-II as per the instructions available in the above mentioned site through drop down menu.

The candidates are required to pay a fee of **Rs. 200/- (Rupees Two Hundred Only)** [excepting Female/SC/ST/PH candidates who are exempted from payment of fee] either by remitting the money in any branch of SBI by cash, or by using net banking facility of State Bank of India or by using any Visa/Master Credit/Debit Card.

Before starting filling up Online Application, a candidate must have his/ her photograph and signature duly scanned in the .jpg format in such a manner that each file should not exceed 40 KB each and must not be less than 3 KB in size for the photograph and 1 KB for the signature.

The Online applications(Part I and II) can be filled from **27<sup>th</sup> September 2017 to 23<sup>rd</sup> October, 2017 till 18:00 Hours**, after which link will be disabled.

Applicants should avoid submitting multiple applications. However, if due to any unavoidable circumstances any applicant submits multiple applications then he must ensure that the applications with higher RID is complete in all respects.

In case of multiple applications, the applications with higher RID shall be entertained by the Commission and fee paid against one RID shall not be adjusted against any other RID.

The applicants must ensure that while filling their application form, they are providing their valid and active e-mail IDs as the Commission may use electronic mode of communication while contacting them. The Applicants are advised to check their emails at regular intervals and ensure that the email address ending with @nic.in are directed to their inbox folder and not to the SPAM folder or any other folder. Candidates are strongly advised to apply Online well in time without waiting for the last date for submission of Online Application.

### Appendix-III

#### (Part – A-)

#### Special Instruction to candidates for conventional type Papers

- Articles permitted inside Examination Hall  
Battery-operated pocket calculators of "non-programmable" type only, mathematical/engineering/ drawing instruments, including a flat rule divided on the edges into inches and tens of an inch and into centimeters and millimeters, a slide rule, set squares, a protractor and a pair of compasses, pencils, coloured pencils, mapping pens, eraser, T-square and drawing board for use wherever necessary. Candidates are not allowed to bring with them any "Tables or Charts" for use in the Examination Hall.
- Tables to be supplied by UPSC  
If it is considered necessary for answering the questions set in any paper, the Commission may supply any of the following for reference purpose only :
  - Mathematical/Physical/Chemical and Engineering Tables (including Logarithmic Tables);
  - Steam Table (including Mollier Diagrams for Temperature up to 800• C and Pressure up to 500 Kgf/Cm);
  - National Building Code of India 1970 or 1983 Group 2 Part VI;
  - Any other special articles as may be necessary for the candidates to answer the questions set in the question paper. After conclusion of the examination, return the above items to the Invigilator.
- Answers to be written in own hand.  
Write the answers in your own hand in ink, Pencil may be used for maps, mathematical drawings or rough work.
- Check Answer Book.  
The candidate must write his roll number (and not his name) only in the space provided for the purpose on every answer book used by him. Before writing in the answer book please see that it is complete. In case there are any missing pages, it should be got replaced. Do not tear out any pages from the Answer Book. If you use more than one Answer Book, indicate on the cover of first Answer Book the total number of Answer Books used. Do not leave any blank, unused spaces between answers. If such spaces are left, score them out.
- Answers in excess of prescribed number will be ignored.

The candidate must attempt questions strictly in accordance with the directions given on each question paper. If questions are attempted in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining answers will be ignored.

6. Questions relating to graph/precis should be attempted only on graph/precis sheets to be supplied on demand by the Invigilators. All loose sheets such as precis sheet, drawing papers, graph sheets etc. whether used or not, should be placed inside the answer books and fastened along with the additional answer book(s), if any. Candidates who fail to observe this instruction will be penalized. Do not write your roll number on these sheets.
7. Unfair means strictly prohibited.  
Do not copy from the papers of any other candidate nor allow your papers to be copied nor give nor attempt to give nor obtain nor attempt to obtain irregular assistance of any description. It will be the responsibility of every candidate to ensure that his answers are not copied by another candidate. Failure to do so will invite penalty, as may be awarded by the Commission for adoption of unfair means.
8. Conduct in Examination Hall  
Do not misbehave in any manner or create disorderly scene in the examination hall or harass or bodily harm the staff deployed for the conduct of examination. You will be severely penalized if you attempt to do so.
9. Please read carefully and abide by the instructions printed on the Question Paper and on the Answer Book supplied in the Examination Hall.
10. The candidates are not allowed to leave the Examination Hall before the expiry of prescribed time period of the examination.

**(Part – B)**

**Special Instruction to candidates for objective type tests**

1. Articles permitted inside Examination Hall.  
Clip board or hard board (on which nothing is written), a good quality black ball pen for making responses on the Answer Sheet. Answer Sheet and sheet for rough work will be supplied by the invigilator.
2. Articles not permitted inside Examination Hall  
Do not bring into the Examination Hall any article other than those specified above e.g. books, notes, loose sheets, electronic or any other type of calculators, mathematical and drawing instruments, Log Tables, stencils of maps, slide rules, Test Booklets, rough sheets pertaining to earlier session(s), etc.  
**Mobile phones, pagers, bluetooth or any other communication devices are not allowed inside the premises where the examination is being conducted. Any infringement of these instructions shall entail disciplinary action including ban from future examinations. Candidates are advised in their own interest not to bring any of the banned items including mobile phones, pagers to the venue of the examination, as arrangements for safekeeping cannot be assured.**
3. **Penalty for wrong Answers (in Objective Type Papers)**  
***THERE WILL BE PENALTY (NEGATIVE MARKING) FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.***
  - (i) There are four alternatives for the answer 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.
4. **Unfair means strictly prohibited**  
No candidates shall copy from the papers of any other candidate nor permit his papers to be copied nor give nor attempt to give nor obtain nor attempt to obtain irregular assistance of any description.
5. **Conduct in Examination Hall**  
No candidates should misbehave in any manner or create disorderly scene in the Examination Hall or harass the staff employed by the Commission for the conduct of the examination. Any such misconduct will be severely penalised.
5. **Answer Sheet Particulars**
  - (i) Write in black ball pen your Centre and subject followed by Test Booklet series (in bracket), subject code and roll number at the appropriate space provided on the Answer Sheet at the top. Also encode your booklet series (A, B, C or D as the case may be), subject code and roll number with black ball pen in the circles provided for the purpose in the Answer Sheet. The guidelines for writing the above particulars and encoding the above particulars are given in Annexure. In case the booklet series is not printed on the Test Booklet or Answer Sheet is unnumbered, please report immediately to the invigilator and get the Test Booklet/Answer Sheet replaced.
  - (ii) Candidates should note that any omission/mistake/discrepancy in encoding/filling of details in the OMR answer sheet, especially with regard to Roll Number and Test Booklet Series Code, will render the answer sheet liable for rejection.
  - (iii) Immediately after commencement of the examination please check that the Test Booklet supplied to you does not have any unprinted or torn or missing pages or items etc. If so, get it replaced by a complete Test Booklet of the same series and subject.

6. Do not write your name or anything other than the specific items of information asked for, on the Answer Sheet/Test Booklet/sheet for rough work.
8. Do not fold or mutilate or damage or put any extraneous marking in the Answer Sheet. Do not write anything on the reverse of the Answer Sheet.
9. Since the Answer Sheets will be evaluated on computerised machines, candidates should exercise due care in handling and filling up the Answer Sheets. **They should use black ball pen only to darken the circles. For writing in boxes, they should use black ball pen. Since the entries made by the candidates by darkening the circles will be taken into account while evaluating the Answer Sheet on computerised machines, they should make these entries very carefully and accurately. The candidate must mark responses in the Answer Sheet with good quality black ball pen.**
10. **Method of marking answers**  
 In the "OBJECTIVE TYPE" of examination, you do not write the answers. For each question (hereinafter referred to as "Item") several suggested answers (hereinafter referred to as "Responses") are given. You have to choose one response to each item. The question paper will be in the Form of TEST BOOKLET. The booklet will contain item bearing numbers 1, 2, 3 etc. Under each item, Responses marked (a), (b), (c), (d) will be given. Your task will be to choose the correct response. If you think there is more than one correct response, then choose what you consider the best response.  
 In any case, for each item you are to select only one response. If you select more than one response, your response will be considered wrong. In the Answer Sheet, Serial Nos. from 1 to 160 are printed. Against each numbers, there are circles marked (a), (b), (c) and (d). After you have read each item in the Test Booklet and decided which one of the given responses is correct or the best, you have to mark your response by completely blackening to indicate your response. Ink pen or pencil should not be used for blackening the circle on the Answer Sheet.  
 For example, if the correct answer to item 1 is (b), then the circle containing the letter (b) is to be completely blackened with black ball pen as shown below :-  
**Example : (a) • (c) (d)**
11. **Entries in Scannable Attendance List**  
 Candidates are required to fill in the relevant particulars with black ball pen only against their columns in the Scannable Attendance List, as given below :-  
 i) Blacken the circle (P) under the column (Present/Absent)  
 ii) Blacken the relevant circle for Test Booklet Series  
 iii) Write Test Booklet Serial No.  
 iv) Write the Answer Sheet serial No. and also blacken the corresponding circles below  
 v) Append signature in the relevant column
12. Please read and abide by the instructions on the cover of Test Booklet. If any candidate indulges in disorderly or improper conduct, he will render himself liable for disciplinary action and/or imposition of a penalty as the Commission may deem fit.
13. The candidates are not allowed to leave the Examination Hall before the expiry of prescribed time period of the examination.

### Annexure

#### **How to fill in the Answer Sheet of objective type tests in the Examination Hall**

Please follow these instructions very carefully. You may note that since the Answer Sheets are to be evaluated on machine, any violation of these instructions may result in reduction of your score for which you would yourself be responsible.

Before you mark your responses on the Answer Sheet, you will have to fill in various particulars in it.

As soon as the candidate receives the Answer Sheet, he/she should check that it is numbered at the bottom. If it is found unnumbered he/she should at once get it replaced by a numbered one.

You will see from the Answer Sheet that you will have to fill in the top line, which reads thus:

केन्द्र	विषय	विषय कोड	□ □	अनुक्रमांक	□ □ □ □ □ □ □ □
-----	-----	-----		-----	
Centre	Subject	S. Code		Roll Number	

If you are, say, appearing for the examination in Delhi Centre for the General Studies Paper and your Roll No. is 081276 and your Test Booklet series is 'A', you should fill in thus, using ball pen.

\* This is just illustrative and may not be relevant to the Examination concerned.

केन्द्र	विषय	विषय कोड	□ □	अनुक्रमांक	□ □ □ □ □ □ □ □
-----	-----	-----	9 9	-----	0 8 1 2 7 6
Centre	Subject	S. Code		Roll Number	



You should write with black ball pen the name of the centre and subject in English or Hindi. The test Booklet Series is indicated by Alphabets A, B, C or D at the top right hand corner of the Booklet.

Write your Roll Numbers exactly as it is in your Admission Certificate in the boxes provided for this purpose. Do not omit any zero(s) which may be there.

The next step is to find out the appropriate subject code from the Time Table. Now encode the Test Booklet Series, Subject Code and the Roll Number in the circles provided for this purpose. Do the encoding with black pen. The name of the Centre need not be encoded.

Writing and encoding of Test Booklet Series is to be done after receiving the Test Booklet and confirming the Booklet Series from the same.

For General Ability subject paper of 'A' Test Booklet Series you have to encode the subject code, which is 99. Do it thus.

पुस्तिका क्रम

विषय

Booklet Series (A)

Subject Code 9 9

●	(0) (0)
(B)	(1) (1)
(C)	(2) (2)
(D)	(3) (3)
	(4) (4)
	(5) (5)
	(6) (6)
	(7) (7)
	(8) (8)
	● ●

All that is required is to blacken completely the circle marked 'A' below the Booklet Series and below the subject code blacken completely the Circles for '9' (in the first vertical column) and '9' (in the second vertical column). You should then encode the Roll No. 081276. Do it thus similarly.

अनुक्रमांक

Roll Numbers					
0	8	1	2	7	6

●	(0)	(0)	(0)	(0)	(0)
(1)	(1)	●	(1)	(1)	(1)
(2)	(2)	(2)	●	(2)	(2)
(3)	(3)	(3)	(3)	(3)	(3)
(4)	(4)	(4)	(4)	(4)	(4)
(5)	(5)	(5)	(5)	(5)	(5)
(6)	(6)	(6)	(6)	(6)	●
(7)	(7)	(7)	(7)	●	(7)
○	●	○	○	○	○
○	○	○	○	○	○

**Important :** Please ensure that you have have carefully encoded your subject, Test Booklet Series and Roll Number.

\* This is just illustrative and may not be relevant to your Examination.

8        8 8 8 8  
9 9 9 9 9 9

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