



**ODISHA PUBLIC SERVICE COMMISSION
CUTTACK**

CORRIGENDUM

WEBSITE- www.opsc.gov.in

**CORRIGENDUM TO ADVERTISEMENT NO. 11 OF 2015-16 FOR RECRUITMENT TO
THE POST OF ASST. EXECUTIVE ENGINEER (ELECTRICAL) IN GROUP- 'A' OF
ODISHA ENGINEERING SERVICE UNDER THE ENERGY DEPT.**

1. Under proviso to Para-4 of the long advertisement the following clause is inserted for information and necessary action of all concerned.

“ Provided further that the maximum age limit shall be relaxed to 45 years in respect of the candidates who have entered the Diploma Engineer’s Service as Junior Engineers whether promoted to the post of Asst. Engineer or not within the prescribed age-limit without the qualification prescribed under clause (b) of Rule-6 and have subsequently acquired the same while serving as such or have acquired such qualification prior to entering the state Government service as Junior Engineers subject to availing of not more than 5 chances”.

2. The last date for submission of online application is 25.09.2015 by 11.59 P.M. and last date for deposit of application fee at any branch of State Bank of India (SBI) is 28.09.2015.

3. All other terms & conditions of the Advertisement No. 11 of 2015-16 shall remain unchanged.

12/09/2015
Secretary

ODISHA PUBLIC SERVICE COMMISSION
ADVERTISEMENT NO. 11 OF 2015/16

Recruitment to the post of Assistant Executive Engineer (Electrical) in Group- 'A' of Odisha Engineering Service under the Energy Department.

WEBSITE – <http://opsconline.gov.in> and <http://opsc.gov.in>

- REMEMBER:** (i) LAST DATE FOR SUBMISSION OF ON LINE APPLICATION IS 19.9.2015 BY 11:59 P.M.
(ii) LAST DATE FOR DEPOSIT OF APPLICATION FEE AT ANY BRANCH OF STATE BANK OF INDIA (S.B.I.) IS 22.9.2015.

Applications are invited online from the prospective candidates through the proforma application to be made available on WEBSITE (<http://opsconline.gov.in>) from 19.08.2015 to 19.09.2015 (Note: 22.9.2015 is the last date for payment of application fees) for recruitment to the posts of Assistant Executive Engineer (Electrical) in Group-A of Odisha Engineering Service under the Energy Department in the scale of pay of ₹ 15,600/- – ₹ 39,100/- with Grade Pay of ₹ 5,400/- with usual dearness allowance and other allowances as may be sanctioned by the Government of Odisha from time to time.

At present, only online applications are invited from candidates for admission to the written examination for the post of Assistant Executive Engineer (Electrical). After declaration of result of written examination, the candidates who qualify, will be required to submit the printout/hard copy of online application form, along with the photocopies of certificates/documents as stated under Para - 11 of this advertisement, on or before the date to be notified later, for consideration of their eligibility for V.V. Test.

2. **Vacancy Position:** As per requisition filed by the Energy Department, Government of Odisha the vacancy position is given below:-

Sl. No.	Category	No of vacancies.	No of Posts reserved for PWD	No of Posts reserved for Sports person	No of Posts reserved for Ex-Servicemen
1	UR	53 (17-w)	HI-1	01	02
2	SC	13 (04-w)	OL-1		
3	ST	22 (07-w)	Total-02		
4	SEBC	01			
Total		89 (28-w)			

Candidates belonging to PWD(Person With Disability), Ex-servicemen and Sports Persons shall be adjusted against the categories to which they belong.

NOTE :- The physical requirement and functional classification for the above posts, as specified in G.A. Department Resolution No. 34450 dated 03.12.2013, for the PWD candidates are mentioned below:-

Physical Requirements	Categories of disabled suitable for the job
ST, W, SE, S, BN, PP, KC, MF, RW, C	HI & OL
Note:- {ST-work performed by standing, W- work performed by walking, SE- work performed by seeing, S- work performed by sitting (on bench or chair), BN-work performed by bending, PP- work performed by pulling & pushing, KC- work performed by kneeling and crouching, MF- work performed by manipulating (with fingers), RW- work performed by reading and writing, C- work performed by communication}	Note:- {HI-Partially deaf, OL- one leg affected (R and/or L)/(Mobility not be restricted)}

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- NOTE:** (a) The probation period of the above post is two years.
(b) In the event of non-availability or availability of insufficient number of eligible women candidate(s) belonging to any particular category, the remaining vacancies will be filled up by male candidate(s) of that category.
(c) Exchange of reservation between scheduled caste and scheduled tribe will not be considered in the event of non-availability of eligible and suitable S.C./S.T. candidates .
(d) The number of vacancy to be filled up on the basis of this recruitment is subject to change by Government without any notice, depending upon the exigencies of public service at the discretion of the state government.
(e) Candidates belonging physically disabilities shall be adjusted against the categories to which they belong.

3. **EDUCATIONAL QUALIFICATION:** A candidate must hold a degree in Engineering in Electrical Engineering or equivalent qualification from any University or Institution recognized by the government or he must be an Associated Member of the Institution of Engineers of India.

4. **AGE:** A candidate must be under 32 (thirty-two) years and above 21 (twenty one) years of age as on the 1st January, 2015 i.e. he/she must have been born not earlier than 2nd January 1983, and not later than 1st January 1994.

The upper age limit is relaxable by 5 (five) years for candidates belonging to the categories of scheduled castes(S.C.), scheduled tribes (S.T.), Socially & Educationally Backward Classes (S.E.B.C.), women, Ex-servicemen, and by 10 (ten) years for candidates belonging to physically handicapped (H.I./OL.) category, whose disability should not be less than 40%.

Provided that, a candidate who comes under more than one category mentioned above, he/she will be eligible for one age relaxation benefit, which shall be considered most beneficial to him/her.

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

Date of birth entered in the High School Certificate or equivalent certificate issued by the concerned Board/Council will only be accepted by the Commission.

NOTE - 1: Candidates should also note that once the date of birth has been entered in the records of the Commission for the purpose of admission to examination, no change will be allowed subsequently on any ground whatsoever.

NOTE - 2: The candidates should exercise due care while entering the date of birth under the respective box of the online application form for the written examination. If, on verification at any subsequent stage, any variation is found in the date of birth from the one entered in their High School Certificate or equivalent certificate, The candidature of the candidate will be rejected.

5. **APPLICATION FEE:** A candidate is required to pay a nonrefundable and nonadjustable fee of ₹ 300/- (Rupees three hundred) only. Candidates belonging to scheduled caste/ scheduled tribe of Odisha and persons with disability (whose disability is not less than 40%) are exempted from payment of this fee.

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6. **METHOD OF SELECTION:** The selection of candidates for recruitment to the above posts shall be made on the basis of objective type written test and Viva Voce test. The weightage on objective type written test shall be 90% (ninety per cent) and weightage on viva test shall be 10% (ten per cent).

The broad outlines the syllabi for the said examination as available in the Annexure-A

7. **PLACE OF EXAMINATION**

The written examination for the post of Assistant Executive Engineer (Electrical) will be held at Cuttack. It may also be held at Bhubaneswar, Balasore, Berhamapur and Sambalpur depending on the number of candidates from the respective zone.

The candidates are to mention their choice of examination zone at appropriate place in the online application form.

8. **OTHER ELIGIBILITY CONDITIONS:**

- (i) The candidate must be a citizen of India;
- (ii) The candidate must be of (a) good moral character, and (b) good mental condition and bodily sound health, good physique and active habits and free from organic defects or bodily infirmity so as not to create an impairment in due discharge of duties;
- (iii) The candidate must be able to speak, read and write Odia and have (i) passed Middle school examination with Odia as a language subject; or (ii) passed Matriculation or equivalent examination with Odia as medium of examination in non- language subjects; or (iii) passed Odia as language subjects in the final examination of Class-VII from a school or Educational Institutions recognized by the Government of Odisha or the Central Government; or (iv) passed a test in Odia in middle English school standard conducted by the School and Mass Education Department/Board of Secondary Education, Odisha or the Education Department of Government of Odisha or any other Board or Council of Secondary Education approved by the Government of Odisha in support of passing of Odia Language Test (M.E. School standard);
- (iv) A candidate, who has more than one spouse living, will not be eligible for appointment unless the State Government has exempted his/her case from operation of this limitation for any good and sufficient reasons;
- (v) Government servants, whether temporary or permanent, are eligible to apply provided that they possess the requisite qualification and are within the prescribed age-limit as provided under Para-3 & 4 of the Advertisement. They must inform their respective Heads of Offices/Departments in writing regarding submission of their applications for this recruitment and obtain "No Objection Certificate";
- (vi) If a candidate has at any time, been debarred for a certain period/chance(s) by the Odisha Public Service Commission or other State Public Service Commission or U.P.S.C. from appearing at any examination/interview, he/she will not be eligible for such recruitment for that specified period/chance(s);
- (vii) **Only those candidates, who possess the requisite qualifications, are within the prescribed age limit and fulfill other eligibility conditions etc. by the closing date for submission of online application form, will be considered eligible;**

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- (viii) A candidate who claims change in his/her name after having passed the H.S.C. Examination, is required to furnish copy of publication of the changed name in the local leading daily news paper as well as copy of notification in the Odisha Gazette in support of his/her change of name.
- (ix) Every candidate selected for appointment shall be examined by the medical board. A candidate, who does not satisfy the requirement after medical examination, shall not be appointed.

9. **OTHER CONDITIONS:**

- (i) The provisions of the Odisha Conduct of Examination Act 1988 (Odisha Act-2 of 1988) are applicable to the examinations conducted by the Odisha Public Service Commission. Any violation of the provisions of the above Act, and violation of instructions to candidates (as provided in the advertisement, online application form, Admission Certificate & Answer Book etc.) will be seriously viewed and disciplinary action will be taken against the concerned candidates as deemed proper;
- (ii) A candidate found guilty of seeking support for his/her candidature by offering illegal gratification or applying pressure on any person connected with the conduct of the recruitment process or found indulging in any type of malpractice in course of the selection or otherwise, shall, in addition to rendering himself/herself liable to criminal prosecution, be disqualified not only for the recruitment for which he/she is a candidate, but also may be debarred, either permanently or for a specified period, from any recruitment or selection to be conducted by the Commission;
- (iii) Any attempt on the part of a candidate to obtain support for his/her candidature by any means or any attempt to gain undue advantage in the selection shall disqualify him/her for recruitment;
- (iii) Applications submitted by the candidate to OPSC, if found to be incomplete in any respect and at any stage are liable to rejection without entertaining any correspondence with the applicants on that score;
- (iv) Admission to examination will be purely provisional. If on verification at any stage before or after the examination, it is found that a candidate does not fulfill all the eligibility conditions, his/her candidature will be **liable to rejection**. Decision of the Commission in regard to eligibility or otherwise of the candidate shall be final.
- (v) This advertisement should not be construed as binding on the Government to make appointment;
- (vi) Concessions meant for S.C., S.T. & SEBC by birth are admissible to the Scheduled Caste, Scheduled Tribe and Socially & Educationally Backward Classes of Odisha only;

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- (vii) All persons appointed under the Government of Odisha on or after 1st January, 2005 shall not be eligible for pension as defined under Sub-rule (1) of Rule-3 of the Odisha Civil Service (Pension) Rules, 1992; but shall be covered by the new structured defined Contribution Pension Scheme in accordance with the Odisha Civil Services (Pension) Amendment Rules, 2005;
- (viii) Any misrepresentation or suppression of information by the candidate in the online application and in the hard copy of application will result in cancellation of his/her candidature or penalty as decided by the Commission will be imposed on the candidate.
- (ix) Mere empanelment in the select list shall not confer any right for appointment unless the Government is satisfied after making such enquiry as may be deemed necessary that the candidate is suitable in all respects for appointment to the service.

10. CERTIFICATES/DOCUMENTS TO BE ATTACHED:

The candidates who qualify in the written exam will be required to submit true copies of the following certificates and documents along with the printout/hard copy of online applications, duly attested by the candidate or a Gazetted Officer or Notary Public. The candidates are also required to mention on each document "submitted by me" and put their full signature with date on the same. They must not attach original certificates/documents with their applications. Only those candidates, who are called for the viva voce test, will be required to bring with them the original certificates, original mark-sheets etc. of the attested copies for verification at the time of viva voce test.

If a candidate fails to furnish any of the original certificates and documents in respect of the attested copies submitted with the application by him/her, for verification on the date of interview, before the interview starts, he/she shall not be allowed to appear at the interview.

- (i) H.S.C. Pass or equivalent Certificate in support of declaration of age issued by the concerned Board/Council;
- (ii) Intermediate/+2Sc./Diploma Pass Certificate issued by the concerned University/Council;
- (iii) Degree (i.e. Engineering in Electrical) pass certificate issued by the recognized University;
- (iv) Mark-lists of all semesters/annual examinations in support of degree/diploma (Engineering in Electrical) passed including fail marks, if any, issued by the concerned Board/Council/University;

NOTE :

- (a) Candidates who have not been awarded percentage of marks, but only "GRADE MARKS", should, along with their applications, produce the Conversion Certificate from the concerned University indicating the actual equivalent percentage of marks and the conversion formula.
- (b) While filling up the relevant box of the online application form, the candidate has to mention the marks secured (excepting marks secured in the extra optional/4th optional subject) in each examination passed (i.e. H.S.C. to Degree/Diploma).
- (v) A "No Objection Certificate" from the Head of Office/Head of the Department in case of Government Servant;
- (vi) Attach two recent passport size photographs (unsigned & unattested), with the printout/hard copy of online application form which has been uploaded;

- (vii) Certificates of character and conduct from the Principal/Proctor/Dean or Professor in charge of Teaching Department of the College or University in which he/she last studied;
- (viii) Candidates claiming to belong to S.C./S.T./S.E.B.C. category **by birth** are required to enclose with applications, the copies of the recent relevant Caste/Tribe Certificates issue by the competent authority in the prescribed form.
- (ix) Required Odia pass certificate from the Board of Secondary Education, Odisha indicating Odia as a language subject equivalent to M.E. school standard or a certificate from the Principal/Headmaster of the school indicating that the candidate has passed Odia in M.E. standard; if not passed Odia as a subject in the High School Certificate Examination/equivalent Examination;
- (x) Discharge certificates of Ex-Serviceman issued by the Commanding Officer of the unit last served wherever applicable;
- (xi) Physically handicapped candidates are required to attach copy of the disability certificate indicating percentage of disability, issued by the concerned medical board, wherever applicable;
- (xii) Candidates claiming sports person's reservations are required to enclose with application the copies of the identity card as sports person issued by the Director, Sports as per Resolution No. 24808/Gen, dated 18th Noyember, 1985.
- (xiii) If a candidate claims to possess qualification, equivalent to the prescribed qualification, the rule/authority (with number and date) under which it is so treated, must be furnished with the application form;
- (xiv) OPSC copy of challan showing payment of examination fees, wherever applicable.

NOTE-1:

Candidates claiming to be belonging to S.C./S.T./S.E.B.C. category **by birth** are required to submit copy of the relevant caste certificate issued by the competent authority in the prescribed form. Candidates of SEBC category (other than creamy layer) must submit copy of caste certificate issued by the competent authority within the last three years from the date of advertisement in the prescribed form.

- (i) Women candidates belonging to S.C./S.T./S.E.B.C. are required to submit caste certificates by birth showing "daughter of" caste certificates by virtue of marriage (i.e. showing "wife of") are not acceptable.
- (ii) OBC CERTIFICATES **WILL NOT BE ACCEPTED** IN LIEU OF SEBC CERTIFICATES AND CANDIDATES SUBMITTING OBC CERTIFICATES WILL BE TREATED AS UNRESERVED CANDIDATES.
- (iii) Candidate if submits S.E.B.C. certificate which is more than three years old as on the date of advertisement, will be treated as U.R. category.
- (iv) Community (Caste status) once mentioned by the candidates shall not be changed under any circumstances.

The competent authorities to issue caste certificates are: - District Magistrate/Collector or Additional District Magistrate or Sub-divisional Magistrate/Sub-Collectors or Executive Magistrates or Revenue Officers, not below the rank of Tahasildar /Additional Tahasildar of Government of Odisha;

NOTE-2:

Degree certificate, caste certificate, Odia test pass certificate and discharge certificate of Ex-serviceman must have been issued by the competent authority within the last date fixed for submission of online application form.

11. HOW TO APPLY:

- (a) Candidate must go through this advertisement available in the Website of OPSC before filling up online application.
- (b) Candidates must apply online through the concerned website <http://opsconline.gov.in> Applications received through any other mode would not be accepted and summarily be rejected.
- (c) Before filling up the online application form, the candidates must go through the following documents available at OPSC portal.
 - i) Instructions to fill up online application.
 - ii) Guidelines for scanning and uploading photograph, full signature & left thumb impression.
- (d) Candidates are required to upload the scanned image of latest passport size colour photograph along with scanned image of his/her full signature and scanned image of left thumb impression (L.T.I.) in the online application form. **The uploaded photograph, specimen (full) signature & L.T.I. must be in jpg. format only and clearly identifiable/visible, otherwise the application of the candidate is liable to be rejected by the Commission and no representation from the candidate will be entertained.**
- (e) Candidates should keep at least 2 copies of latest passport size photograph which is uploaded on the online application form for future use.
- (f) While filling up the relevant box of the online application form, the candidate has to mention details of marks (minus extra optional) secured in each annual examination leading to award of degree.
- (g) On successful submission of the Online application form, a unique registration ID will be displayed on the screen as well as on the top of the application form. **Candidates are required to note down the unique registration ID and take a printout of the finally submitted online application form for future reference.**
- (h) **Thereafter, the candidates who are required to pay the fee shall take a printout of online challan (Pay-in-Slip) for payment of requisite fee of ₹ 300/- (Rupees three hundred) only at any branch of State Bank of India (SBI). The Fee paid shall not be refunded under any circumstances nor can the fee be adjusted or held in reserve for any other examination or recruitment.**
- (i) **The candidates are advised to submit the online application well in advance without waiting for the closing date to avoid last hour rush.**
- (j) At present, only the online applications are invited from candidates for admission to the written examination for Assistant Executive Engineer (Electrical). Candidates who will qualify in the written examination are required to send the Printout/Hard copy of the Online Application Form along with Challan (OPSC copy) showing payment of examination fee and specified documents/ certificates etc. as provided under Para-11 of this advertisement, **only by Registered Post or Speed Post** to the Special Secretary, Odisha Public Service Commission, 19, Dr. P.K. Parija Road, Cuttack-753001 so as to reach the same in OPSC on or before the prescribed date (which will be declared after publication of the result of Written Examination) failing which, his/her candidature for the recruitment shall be cancelled.

The envelope containing the Printout/Hard copy of the online application form must be superscribed **"APPLICATION FOR THE POST OF ASSISTANT EXECUTIVE ENGINEER (ELECTRICAL) WITH Advt. No."**. The printout/hard copy of the online application form received after the prescribed date shall not be entertained. **The Commission will not take any responsibility if the printout/hard copy of the online application form along with all required certificates/documents is not received in time.**

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- (h) Admission certificates of the eligible candidates for written examination and intimation letter for V.V. test will be uploaded in the website of OPSC prior to the date of written examination /V.V, Test, which will be published in the website and news paper. The candidates are required to **download their admission certificate/Intimation letter from website**. No separate correspondence will be made for this purpose.

12. FACILITATION COUNTER AND WEBSITE FOR GUIDANCE OF CANDIDATES :-


For any technical guidance on filling up of online application, the candidates may contact facilitation counter of O.C.A.C. over Toll free No. **1800 345 6770 or 155335** between 10.30. A.M. to 1.30 P.M. and 2.00 P.M. to 5.00 P.M. on any Odisha Government working days.

Regarding difficulty in payment of fee, if any, the candidates may contact SBI over Telephone No. **0671-2368267 and 9437039604**.

In case of any guidance/information on this advertisement and recruitment, candidates may contact the O.P.S.C. facilitation counter over telephone No. 0671-2304141/2305611 and Extn.-227 on any working day between 10.30 A.M. to 1.30 P.M. & 2.00 P.M. to 5.00 P.M.

The candidates are required to visit the website of the Commission at <http://opsc.gov.in> for detailed information about the programme of the examination/interview, notice regarding rejection of applications; other important notices etc. and also keep track of publication of various notices to the effect in the leading local daily news papers for information.

CUTTACK
DATE: --18.08.2015


SPECIAL SECRETARY
ODISHA PUBLIC SERVICE COMMISSION,
CUTTACK

ANNEXURE-A

Syllabus for the Recruitment to the post of Assistant Executive Engineer (Electrical) in Group-A.

Electrical Engineering Paper-I

1. Electrical Machines:

Single phase transformer – equivalent circuit, phasor diagram, tests, regulation and efficiency; three phase transformers – connections, parallel operation; auto-transformer & three winding transformer; principles of energy conversion; Windings of rotating Machines; DC Generators & Motors- Characteristics, starting and speed control, Armature Reaction and Commutation; Three phase Induction Motors – performance characteristics, starting and speed control; single phase Induction Motors; Synchronous Generators – performance, regulation, parallel operation; Synchronous Motors – starting, characteristics, applications, synchronous condensers; fractional horse power motors; permanent magnet and stepper motors.

2. Electrical Circuits:

Network Graph, KCL, KVL, Node/Cut Sets, Mesh/Tie Sets Analysis, Sinusoidal Steady State Analysis; Transient Response of DC and AC Networks; Resonance in Electrical Circuits; Concepts of Ideal voltage and Current Sources; Network Theorems; Driving Point Impedance and Admittance and Transfer Functions of Two Port Network; Elementary concepts filters; three phase circuits; Fourier Series and Laplace Transform Methods for solving Electrical Networks; Two elements Network Synthesis.

3. Control Systems:

Mathematical Modelling of Physical Systems; Block Diagram and Signal flow graphs and their reduction; Time domain and frequency domain analysis of linear dynamical systems; Error for different types of inputs and stability criteria for feedback systems; Stability analysis using Routh-Hurwitz array, Nyquist Plot and Bode Plot, Root Locus and Nichols Chart and the Estimation of Gain and Phase margin; Basic Concepts of Compensator Design; State variable Matrix and its uses in System Modelling and Design; Sample data system and performance of such a system with the samples in the error channel; stability of sampled data system elements of non-linear control analysis; Control System Components – Electromechanical, Hydraulic, Pneumatic components.

4. Measurement & Instrumentation:

Bridges and potentiometer, PMMC, Moving Iron, Dynamometer and Induction Type Instruments; Measurement of Voltage, Current, Power; Energy and Power factor; Instrument Transformers; Digital Voltmeter and Multimeter; Phase, Time and Frequency Measurements; Q-Meter, Oscilloscope, Potentiometric Recorders, Error Analysis; transducers and their applications to the measurement of non-electrical quantities like; temperature, pressure, flow-rate, displacement, acceleration, noise level etc., Data Acquisition system; A/D and D/A converters.

5. Electromagnetic Theory:

Electric and Magnetic Fields, Gauss 'law, Ampere's Law, Field in Dielectrics, conductors and magnetic materials, Maxwell's Equations, Time varying fields, Plane wave propagation in dielectric and conducting media; Transmission Lines.

Electrical Engineering Paper-II

1. Power Systems:

Electric Power Generation – Thermal, Hydro, Nuclear – Economics and operating Factors; Transmission line parameters; Steady state performance of overhead Transmission line and Cables and Surge propagation; Distribution System; Insulators, Bundle Conductors, Corona and Radio Interference Effects; Per Unit quantities; Bus Admittance and Impedance matrices; Load Flows; Voltage Control and Power factor corrections; Economic Operation; Symmetrical Components; Analysis of symmetrical and Unsymmetrical faults; principle of over current, differential and distance protection; concept of solid state relays and digital protection; Circuit Breakers; Concept of Stability – swing Curves and Equal Area criterion; Basic concept of HVDC transmission and FACTS Devices.

2. Power Electronics & Electric Drives;

Semiconductor Power Devices – Diodes, Transistors, Thyristors, Triacs, GTOs, MOSFETs and IGBTs – Static Characteristics and principle of operations; Triggering Circuits; Single Phase and Three Phase half controlled and full controlled Bridge Rectifiers', DC-DC Converters – Buck Converters, Boost Converter, Buck-Boost Converter, Single phase and three phase Inverters, Pulse Width Modulation Techbiques; basic Concept of adjustable DC and AC Drivers.

3. Microprocessor and Microcontroller:

8085 and 8086 microprocessor architecture, Instruction sets and simple assembly language programming, Interfacing for memory and I/O; 8051 Microcontroller Architecture, Instruction Sets and Simple Assembly language programming; Applications of Microprocessors and Microcontroller.

4. Analog and Digital Electronic Circuits:

Semiconductor Device Physics, P-N junctions and transistors- circuit models and parameters; FET, Zener, Tunnel, Schottky, Photo Diodes and their applications; Rectifier circuits; voltage regulators and multipliers; switching behaviour of diodes and transistors; small signal amplifiers-biasing circuits, frequency response and improvement; multistage amplifiers and feedback amplifiers; DC amplifiers; Wave shaping circuits; Multivibrators and Flip Flops and their applications; Digital logic gate families, Universal Gates; Combinational circuits for arithmetic and logic operations; Sequential logic circuits; Counters and registers; RAM and ROMs.

5. Communication Systems:

Types of Modulations; AM, FM and PM; Demodulators; Noise and bandwidth Considerations; Digital communication systems; Pulse code modulation and Demodulation; Elements of sound and vision broadcasting carrier communication; frequency division and time division multiplexing; telemetry systems in power engineering.

A. Electrical Engineering Paper-I

1. Electrical Machines	20
2. Electrical Circuits	20
3. Control Systems	20
4. Measurement & Instrumentation	15
5. Electromagnetic Theory	15
Total No. of Questions	90

B. Electrical Engineering Paper-II

1. Power Systems	25
2. Power Electronic & Electric Drives	20
3. Microprocessor & Microcontroller	15
4. Analog & Digital Electronic Circuits	15
5. Communication Systems	15
Total No. of Questions	90