

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED
DETAILED NOTIFICATION
RECRUITMENT FOR THE POST OF Assistant Engineer(Elec./Telecom)

Applications are invited On-line through APTRANSCO WEBSITE www.aptransco.gov.in and <http://aptransco.cgq.gov.in> from **22.12.2011 to 18.01.2012** (to **17.01.2012** for payment of fees) from eligible Engineering Graduates for filling up the following vacancies on regular basis in APTRANSCO Engineering Service.

The desirous eligible Candidates may apply ON-LINE by satisfying themselves with the terms and conditions of this recruitment.

Name of the Zone	Asst. Engineer/ Electrical			Asst. Engineer/ Telecom		
	NL	L	Total	NL	L	Total
Visakapatnam	17	25	42	1	1	2
Vijayawada	16	25	41	1	2	3
Kadapa	16	24	40	4	5	9
Hyderabad Metro	7	11	18	2	2	4
Hyderabad Rural	24	35	59	2	2	4
Warangal	10	15	25	1	2	3
Total	90	135	225	11	14	25

NL: Non-Local

L: Local

These vacancies are subject to variation at the time of recruitment based on the necessity.

Percentage of reservation:

BC-25% + 4% Muslim reservation subject to orders of Government from time to time.

SC- 15%, ST-6%, PH-3%

33 1/3 % reservation for women is applicable as per rules.

Detailed notification with break-up of vacancies, Scale of Pay, Age, Community, Educational Qualifications and other instructions along with syllabus for the written examination may be viewed at AP Transco website (www.aptransco.gov.in) from **20.12.2011**.

FEE:

Each applicant must pay Rs. 150/- (Rupees One hundred and fifty only) towards Application Processing Fee.

- i) Applicants under General category must also pay **RS.350/- (Rs Three hundred and fifty Only)** towards Examination Fee. (Applicants belonging to SC/ST/BC Communities and PH need not pay this fee).
- ii) Candidates belonging to States other than Andhra Pradesh will be considered in general category only and are required to pay the above-prescribed fee.

Starting date for Payment of Fee and Application submission is **22.12.2011**.

Last date for payment of Fee at AP Online is **17.01.2012**.

Last date for submission of Application is **18.01.2012 up to 7 P.M**

Place: Hyderabad

Date :

CHIEF GENERAL MANAGER
(HRD &Trg.)

Detailed notification for Assistant Engineer (Elect., & Telecom)
INSTRUCTIONS

I. Instructions for Scanning of Photograph with Signature

Photo width= 3.5cm

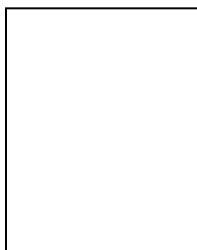


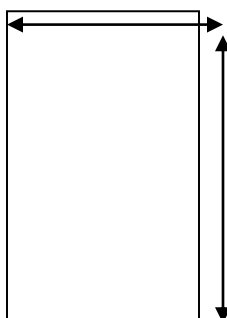
Photo Height= 4.5cm

Signature Space = 1.5 cm



1. Paste the Photo on any white paper as per the above required dimensions. Sign in the Signature Space provided. Ensure that the signature is within the box.
2. Scan the above required size containing photograph and signature. Please do not scan the complete page.
3. The entire image (of size 3.5 cm by 6.0 cm) consisting of the photo along with the signature is required to be scanned and stored in ***.jpg** format on local machine.
4. Ensure that the size of the scanned image is not more than 50KB.
5. If the size of the file is more than 50 KB, then adjust the settings of the scanner such as the dpi resolution, no. of colors etc., during the process of scanning.
6. The candidate has to sign in full in the box provided. Since the signature is proof of identity, it must be genuine and in full; initials are not sufficient. Signature in CAPITAL LETTERS is not permitted.
7. The signature must be signed only by the candidate and not by any other person.
8. The signature will be used to put on the Hall Ticket and wherever necessary. If the candidate's signature on the answer script, at the time of the examination, does not match the signature on the Hall Ticket, the candidate will be disqualified.

Sample Photo and Signature



e.g. The Technical Specifications of the sample scanned image shown above are:

- Size of the file < 50 KB
- Dpi setting = 200 dpi
- True Colour

The candidate has to upload his/her **Photo with Signature** in the prescribed format by clicking on the **browse** button at the time of submission of application form.

II. ELIGIBILITY:

1.AGE: Shall not be more than 34 years as on **01.07.2011**.

Upper age limit will be relaxed up to 5 years in respect of SC/ST/BC candidates and up to 10 years in respect of P.H candidates.

2.EDUCATIONAL QUALIFICATIONS:

- a) **Assistant Engineers/Electrical:** Must possess BE/B.Tech/ A.M.I.E, Electrical & Electronics Engineering or equivalent qualification in the similar discipline from any recognized University in India.

- b) **Assistant Engineers/Telecom:** Must possess BE/B.Tech/ A.M.I.E, in Telecommunications/Electronics/ Electronics and Communication or equivalent qualification in the similar discipline from any recognized University in India.

III. SELECTION PROCEDURE:

- i) The selection of candidates for appointment will be made 100% on Written examination.
- ii) Only those candidates who qualify in the written examination by being ranked high, community wise will be called for verification of Original Certificates in 1:1 ratio.
- (iii) The minimum qualifying marks in the written test for the above selection process shall be as follows:

OC	-	40%
BC	-	35%
SC/ST	-	30%
Or as per Rules		

Note: Mere securing minimum qualifying marks doesn't vest, any right to a candidate for being called for verification of original certificates.

IV. Details of Written Examination:

- i) **Syllabus:** The syllabus for the written examination is placed at Annexure I.
- ii) **Hall Tickets:** The hall tickets will be placed on the website seven days prior to the date of examination. The candidate has to down load the Hall ticket from the website only. Hall tickets will not be sent to the candidates by post.
- iii) **Date of examination:**
- (a) The written examination for recruitment of Assistant Engineer/ Elec.& Telecom, will be held on **29.01.2012** at **10 AM to 12 Noon**.
- iv) **Examination Centers:** The written examination for recruitment of Assistant Engineer/ Elec., /Telecom will be held at different centers located only in Hyderabad & Secunderabad.
- v). **Instructions to Candidates at the time of Written Examination:**
1. The test is of two hours duration. The date and time will be indicated on the Hall ticket. Candidates should reach the test center in time. Candidates will be allowed in to the examination hall half an hour before the scheduled starting time. Candidates will not be allowed into the examination hall after the test has started and will not be permitted to leave examination hall before the closure of test time under any circumstances.
 2. The test will be of objective type with multiple-choice questions with only one answer being correct among the four alternatives suggested.
 3. A separate O M R (Optical mark Reader) answer sheet will be provided to the candidates. The candidate has to indicate his response to each question by darkening the appropriate bubble with a HB Pencil.
 4. The candidate has to bring a good quality HB Pencil, eraser, sharpener and blue/black pen or ball point pen to the examination hall.
 5. The candidate has to follow meticulously all the instructions given on the question paper booklet and OMR Answer Sheet, else his answer sheet may not be valued.
 6. Usage of Calculators/mathematical tables is not permitted. Candidates should not bring cell phones or any other electronic gadgets to the examination hall.

V. TERMS AND CONDITIONS OF SERVICE:

1. **Scale of Pay:** Rs. 23115-955-25025-1115-30600-1280-35720.

2. **Training cum Probation:** The candidates appointed to the post shall be placed on Training-cum-Probation for a period of 2 years.

3. **Place of posting:** The candidates appointed shall be required to work at the substations of APTRANSCO for a minimum period of 3 years.

4. The candidate will be governed by the rules and regulations applicable or as framed by the AP Transco and as amended from time to time. The Tripartite Agreement entered into between the APSEB, Govt of A.P and the Employees Associations is not applicable to these candidates and they shall at no stage be entitled to claim any right what so ever arising out of the said Tripartite Agreement.

VI. EXECUTION OF BOND :

- (i) The candidates appointed will be required to execute a Bond (in Non-Judicial stamp paper worth Rs.110/- (Rupees One hundred and ten only) at the time of joining, to serve APTRANSCO for a MINIMUM period of 5 Years after completion of Training-cum-Probation period (2 years).
- (ii) During the above bond period the candidates will deposit his/her original certificates such as Degree, date of birth and community, etc with APTRANSCO. The Certificates so deposited with APTRANSCO shall not be returned during the above bond period.
- (iii) The Candidate who leaves the APTRANSCO service during the Training-cum-Probation period shall refund the emoluments received by him/her plus **Rs.30,000/- (Rupees Thirty thousand only)** by way of liquidated damages.
- (iv) The Candidate who leaves the APTRANSCO service without serving a minimum period of 5 years after completion of Training-cum-Probation period shall have to pay a sum of **Rs.60,000/- (Rupees sixty thousand Only)** by way of liquidated damages to the Corporation.

VII. HOW TO APPLY:

HOW TO UPLOAD THE APPLICATION FORM:

i) The Applicants have to read the User Guide for Online Submission of Applications and then proceed further.

I Step:- Payment of Fee: The Applicant should pay the prescribed Fee as per the notification in any one of the A.P. Online centers and obtain Fee paid receipt with Journal Number (12 digit) in the first instance. Applicants can also pay the fee through APOne portal.

II Step:- Submission of Application: After payment of Fee, the Candidate has to logon to the website [http:// www.aptransco.gov.in](http://www.aptransco.gov.in) and click on **APPLY ONLINE** link or directly visit <http://aptransco.cgg.gov.in> to view the detailed notification, User Guide and Application Form. The applicants have to provide payment details (journal number and date) and upload the scanned copy of passport size photograph with signature (see instructions for scanning and uploading photograph with signature) and then invariably fill all the relevant fields in the Application. Immediately on submission of application, applicant will get an acknowledgement in the form of a downloadable pdf document.

NOTE:

1. The applicants are required to go through the detailed notification and decide themselves as to their eligibility for this recruitment carefully before applying and enter the particulars completely online.
2. Candidates are required to retain a photocopy of application form with **Reference ID** for future reference.
3. Candidates have to submit application only through online mode well in advance of the last date to avoid last day rush.
4. **Hand written/ Typed/ Photostat copies/ Outside printed Application Form will not be accepted and liable for rejection.**
5. Only applicants willing to serve anywhere in the Andhra Pradesh should apply.
6. For any problems related to Online submission and downloading of Hall-Tickets please contact **Help Desk No. _____** (Call Time: 10:30 A.M to 1:00 P.M & 2:00 P.M to 5:00 P.M) or log on to <http://aptransco.cgg.gov.in> click on to complaint box.

VIII. FEE

Each applicant must pay Rs. 150/- (Rupees One hundred and fifty Only) towards Application Processing Fee.

- ii) Applicants under General category must also pay **RS.350/- (Rs.Three hundred and fifty ONLY)** towards Examination Fee. (Applicants belonging to SC/ST/BC Communities and PH need not pay this fee).

Mode of Payment of Fee: The Applicant should pay the prescribed Fee as per the notification in any one of the A.P. Online centers and obtain Fee paid receipt with Journal Number(12 digit) in the first instance. Applicants can also pay the fee through AP Online portal.

Submission of Application: After payment of Fee, the Candidate has to logon to the website [http:// www.aptransco.gov.in](http://www.aptransco.gov.in) and click on **APPLY ONLINE** link or directly visit <http://aptransco.cgg.gov.in> to view the detailed notification, User Guide and Application Form. The applicants have to invariably fill all the relevant fields in the Application. Immediately on submission of application the Applicant will get an acknowledgement in the form of a downloadable pdf document.

NOTE:

1. AP Transco is not responsible, for any discrepancy in submitting through Online. The applicants are therefore, advised to strictly follow the instructions and User guide in their own interest.
2. Applicant must compulsorily fill-up all relevant **fields** of application and submit application through website only.
3. Incomplete/incorrect application form will be summarily rejected. AP Transco under any circumstances will not entertain the information if any furnished by the candidate subsequently. Applicants should be careful in filling-up of the application form **at the time of submission**. If any lapse is detected during the scrutiny, the candidature will be rejected even though he/she comes through the final stage of recruitment process or even at a later stage.
4. Before payment of fee, submission of application form, the candidates should carefully ensure his/her eligibility for this **notification**. No relevant column of the application form should be left blank; otherwise application form will not be accepted.
5. The applications received online in the prescribed proforma available in the website and within the time shall only be considered and the AP Transco will not be held responsible for any kind of discrepancy.
6. Applicants must compulsorily upload his/her own scanned photo with signature in jpg format only.

General

- Candidates belonging to States other than Andhra Pradesh will be considered in general category only and are required to pay the above-prescribed fee.
- The candidate should not furnish any false tampered, fabricated information or suppress any material information while filling up the application form.
- Candidates called for verification of certificates will be required to furnish documentary proof in evidence of the following as and when called for.
 - a) Age: Proof of age as recorded in SSC certificate or equivalent.
 - b) Qualification of BE/B. Tech/AMIE or equivalent from any recognized University in India.
 - c) Permanent Community certificate issued by MRO in original or Original caste certificate issued by Revenue Officer not less than the rank of MRO issued on or after 01.07.2011 in respect of SC/ST & BC candidates clearly indicating the Sub-Caste and group.
 - d) Physically Handicapped certificate indicating the minimum 40% of disability issued by ENT Hospital, Koti, Hyderabad in respect of PH-HH, Sarojini Devi Eye Hospital, Hyderabad in respect of PH-VH & Osmania General Hospital in respect of PH-OH as the case may be. The certificate should be later than 01.07.2011.
 - e) Study Certificate / Residential Certificate issued by the Officer of the Revenue Department not below the rank of Tahsildar in independent charge of Mandal as the case may be .
- Candidates will be required to appear for written test as and when conducted at their own cost.
- Admission for written test or calling the qualified candidates in the written test to furnish documentary proof does not confer any right for appointment.
- The degrees awarded by the Universities/institutions that are recognized by the U.G.C, D.E.C (Under IGNOU) and AICTE as the case shall only be considered.
- The decision of the Selection Committee/AP TRANSCO is final in selection and allotment of candidates.

IX. BREAK UP OF VACANCIES

Consequent to implementation of the spirit of A. P. Public Employment (Organization of Local Cadres & Regulation of Direct Recruitment) order, 1975 which popularly known as "The Presidential Order" in APTRANSCO, the break-up of vacancies,

are as

Zone-wise,
follows:

Name of the Zone	Asst. Engineer/ Electrical			Asst. Engineer/ Telecom		
	NL	L	Total	NL	L	Total
Visakapatnam	17	25	42	1	1	2
Vijayawada	16	25	41	1	2	3
Kadapa	16	24	40	4	5	9
Hyderabad Metro	7	11	18	2	2	4
Hyderabad Rural	24	35	59	2	2	4
Warangal	10	15	25	1	2	3
Total	90	135	225	11	14	25

N.L : Non – Local ; L- Local

COMMUNITY WISE BREAK-UP OF VACANCIES:

ASSISTANT ENGINEER (ELECTRICAL)

Zones	OC		BC-A		BC-B		BC-C		BC-D		BC-E		SC		ST		PH		Total
	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	
VSP	14	6	2	1	2	1	1	-	2	1	-	1	4	2	2	1	1	1	42
VJA	14	6	2	1	2	1	1	-	2	1	1	1	4	2	2	-	-	1	41
KDP	13	7	2	1	2	2	1	-	-	1	-	1	3	2	2	1	1	1	40
Hyd (M)	6	2	-	1	-	1	1	-	-	1	-	1	2	1	-	1	1	-	18
HYD (R)	19	10	3	2	2	2	1	-	2	1	1	1	5	3	2	2	2	1	59
WGL	8	4	1	1	-	2	1	-	-	1	-	1	2	2	-	1	1	-	25
TOTAL																			225

ASSISTANT ENGINEER (TELECOM)

Zones	OC		BC-A		BC-B		BC-C		BC-D		BC-E		SC		ST		PH		Total
	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	G	W	
VSP	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2
VJA	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3
KDP	3	2	-	-	-	-	1	-	-	1	-	1	1	-	-	-	-	-	9
HYD (M)	1	1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	4
HYD (R)	1	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	4
WGL	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3
TOTAL																			25

G – General; W - Women PH – Physically Handicapped.

X ZONAL/ LOCAL:

The select list will be drawn into two parts. The first part will comprise 40% of the posts consisting of combined merit list of local as well as non-locals and the remaining second part will comprise the balance 60% of the posts consisting of locals only and the posts will be filled only following the rule of reservation.

a) The candidates will be selected and allotted to Zones/Sub Stations as per their Rank in the merit list and as per zonal preferences for allotment of non-local candidates against vacancies available. Selection shall be made on State Wide merit, in respect of non-local candidates and allotment of Zones shall be made as per the preference given by candidates against the actual vacancies.

b) While the Corporation calls for preference of candidates in respect of zones in the application form, it is hereby clarified that the said preferences are only indicative for being considered to the extent possible but not binding. Therefore, the APTRANSCO has the power to assign a successful candidate to any of the notified posts in the Zone in respect of non-local candidates, for which he/she is considered to be qualified and eligible, subject to fulfilling the selection criteria. Mere claim of preference for any zone for allotment against vacancy does not confer a right to selection for that Zone in particular or any Zone in general.

RESERVATION TO LOCAL CANDIDATES:

Reservation to the local candidates is applicable as provided in the Rules and as Amended from time to time in force on the date of notification. The candidates claiming reservation as Local candidates should obtain the required Study certificates (from class IV to X) or Residence Certificate in the proforma only for those candidates who have not studied in any Educational Institutions as the case may be . The relevant certificates may be got ready with authorized signature and kept with the candidates as and when required.

DEFINITION OF LOCAL CANDIDATE:

- (i) "LOCAL CANDIDATE" means a candidate for direct recruitment to any post in relation to that Local areas where he/she has studied in Educational Institution(s) for not less than four consecutive academic years prior to and including the year in which he/she appeared for S.S.C. or its equivalent examination. If however, he/she has not studied in any Educational Institution during the above four years period, it is enough if he/she has resided in that area which is claimed as his /her Local area during the above said period.
- (ii) In case the candidate does not fall within the scope of the (i) above it will be considered if he/she has studied for a period of not less than seven years prior to and inclusive of the year in which he/she has studied for the maximum period out of the said period of seven years AND where the period of his/her study in two or more Local areas are equal such Local area where he/she has studied last (in such Local area) will be taken for determining the Local candidature. Similarly, if he/she has not studied during the above said period in any Educational Institution(s) the place of residence during the above period will be taken into consideration and Local candidature determine with reference to the maximum period of residence or in the case of equal period where he/she has resided last.
- (iii) If the claim of Local candidature is based on study, the candidate is required to produce a certificate from the Educational Institution(s) where he/she has studied during the said 4/7 year period .If, however, it is based on residence, a certificate should be obtained from an officer of the Revenue Department not below the rank of a Tahsildhar in independent charge of a Mandal
- (iv) If, however, a candidate has resided in more than one Mandal during the relevant 4/7 years period but with in the same District or Zone as the case may, be separate certificates from the Tahsildhars exercising jurisdiction have to be obtained in respect of different areas.

NOTE:

- A. Single certificate, whether of study or Residence would suffice for enabling the candidate to apply as a "**LOCAL CANDIDATE**".
- B. Resident certificate will not be accepted, if a candidate has studied in any Educational Institution up to S.S.C or equivalent examination, such candidates have to produce study certificates invariably.
- C. Each of the following Zones comprises the Districts mentioned against each Zone

Sl.No	Zones	Districts
1	Visakhapatanam (VSP)	Srikakulam, Vizianagaram Visakapatnam. East & West Godavari
2	Vijayawada (VJA)	Krishna, Guntur, Prakasham & Potti Sreeramulu Nellore
3	Kadapa (KDP)	Chitoor, Kadapa, Anantapur and Kurnool.
4	Metro Hyderabad Hyd (M)	Hyderabad, Rangareddy.
5	Rural Hyderabad Hyd(R)	Mahboobnagar, Medak and Nalgonda
6	Warangal (WGL)	Adilabad, Karimnagar, Warangal Khammam and Nizamabad

Presidential Order is not applicable to Corporate Head Office.

ANNEXURE – I

Syllabus for Written Test of AP Transco Assistant Engineer (Electrical) 2011-12

Electric Circuits: Network graph, KCL, KVL, node and mesh analysis, star/ delta transformation; electromagnetic induction; mutual induction; ac fundamentals; harmonics, transient response of dc and ac networks; sinusoidal steady-state analysis, resonance, ideal current and voltage sources, Thevenin's, Norton's, Superposition and Maximum Power Transfer theorems, two-port networks, three phase circuits, power measurement .

Electrical Machines: Single phase transformer - equivalent circuit, phasor diagram, tests, regulation and efficiency; three phase transformers - connections, parallel operation; auto-transformer; DC machines - types, windings, generator/ motor characteristics, armature reaction and commutation, starting and speed control of motors; three phase induction motors - principles, types, performance characteristics, starting and speed control; single phase induction motors; synchronous machines - performance, regulation and parallel operation of generators, motor starting, characteristics and applications .

Power Systems: Basic power generation concepts; transmission line models and performance; underground cable, string insulators; corona; distribution systems; per-unit quantities; bus impedance and admittance matrices; load flow; voltage control; power factor correction; economic operation; symmetrical components; fault analysis; principles of over-current, differential and distance protection; protection of alternator, transformer, transmission lines neutral earthing, solid state relays and digital protection; circuit breakers; system stability concepts, swing curves and equal area criterion

Utilization & Control Systems: Principles of feedback; transfer function; block diagrams; steady-state errors; Routh and Nyquist techniques; Bode plots; root loci; lag, lead and lead-lag compensation; Heating - resistance, induction, dielectric; Welding – spot, seam and butt; Electric traction – speed-time curves, tractive effort;

Measurements: Bridges and potentiometers; PMMC, moving iron, dynamometer and induction type instruments; measurement of voltage, current, power, energy and power factor; digital voltmeters and multi-meters; phase, time and frequency measurement; Q-meters; oscilloscopes;

Analog and Digital Electronics: Characteristics of diodes, BJT, FET; amplifiers - biasing, equivalent circuit and frequency response; oscillators and feedback amplifiers; Combinational and sequential logic circuits; multiplexer; Schmitt trigger; A/D and D/A converters; 8-bit microprocessor basics, architecture, programming and interfacing.

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; basic concepts of adjustable speed dc and ac drives.

Model Question Paper

The question paper consists of **one hundred** multiple choice objective type questions to be answered on the OMR answer sheet using HB pencil in **2 hours**. A few questions are given as a model below. **Note:** *Calculators are not allowed into the Examination Hall. Candidates have to bring their own pencils and erasers.*

1.The armature of a d.c machine is made of (A) Silicon steel (B) Wrought iron (C) Cast steel (D) Soft iron	A ●	B ○	C ○	D ○
2.The main drawbacks of d.c shunt generator is that (A)Shunt circuit has high resistance (B) Generator voltage is small (C) Terminal voltage drops considerably with load (D) It is expensive	○	○	●	○
3.Transformers usually transfer electrical energy from primary to secondary with change in (A) Frequency (B) Voltage (C) Power (D) Time period	A	B	C	D

Syllabus for Written Test of AP Transco **Assistant Engineer (Telecom) 2011-12**

Network Analysis : Kirchoff's Laws, RC, RL & RLC Circuits, Initial conditions, Energy, Power, Instantaneous, max, average, RMS values of alternating currents, Phasor representation, transient and steady state analysis, Total response. Network analysis using Laplace Transforms, properties of Laplace transforms.

Fourier Series: Continuous and discrete Fourier Transforms, z-transforms. Applications to signal Analysis.

Convolution. Network Theorems and Applications. Two Port Parameters, Series, Parallel and Cascade connections of two port networks, Z, Y, ABCD Parameters, Network Functions, Poles and Zeros. Driving point and Transfer Functions, Image Parameters, Conventional LP, HP, BP, Band Stop Filters. Composite Filters, T, π & Lattice Networks, Attenuators and Equalizers.

Electronic Devices & Circuits: PN Junction, PNP, NPN Transistors. Biasing, Tunnel Diode, FET, UJT, SCR Characteristics, Various CB, CE, CC transistor Amplifiers – Analysis & Performance. RC coupled and push pull amplifiers, compensation techniques, Feedback, Negative feedback, oscillator Circuits, Phase Shift Oscillator.

Digital Circuits: Wave Shaping, multivibrators, Sweep Generators, Counters, logic Gates and Circuits, Number Systems, Codes, Error Detection and Correction. Sequential Circuits, Integrated Circuits OP Amps-Applications, IC Comparator Circuits, A/D, D/A Converters.

Linear Control System: Open loop, Closed loop system, Signal Flow Graphs, Stability, Routh – Hurwitz and Nyquist Criterion, Bode plots, Gain-phase Margin, Lead-Lag compensation Techniques.

Transmission Lines & Antennas: Transmission line equation, Primary and Secondary Parameters, Propagation constants, Open and Short Circuited Lines, Standing Waves, Reflection Coefficient, VSWR, Line as Circuit element, Impedance Matching.

Maxwell's equations and Field Theory: Various Laws & Theorems in Electromagnetism, Plane Waves, Boundary Conditions, Concept of Radiation, Half wave Dipole, Antenna Arrays, Communication Antennas – performance Characteristics.

Wave guides and Components: Reciprocal & non Reciprocal Wave guide components, Couplers, Tees, Microwave Sources, Microwave Communication, Link Design.

Basics of Micro Processors & Micro Controllers: Architecture and Assemblers, memory Devices.

Communication systems: Modulation, All types of Modulation techniques, SNR, Analog & Digital Communication techniques, multiplexes, Demodulators, Radio Receivers & Transmitters – Characteristics & Basics of Fibre Optics Communication and Satellite Communication Systems.

Model Question Paper

The question paper consists of *one hundred* multiple choice objective type questions to be answered on the OMR answer sheet using HB pencil in *2 hours*. A few questions are given as a model below.

Note: Calculators are not allowed into the Examination Hall. Candidates have to bring their own pencils and erasers.

1. For reciprocal network, ABCD parameters are related as (A) $A = D$ (B) $B = C$ (C) $AD - BC = 1$ (D) $AD + BC = 1$	A O	B O	C ●	D O
2. For a short circuited transmission line, reflection coefficient is equal to (A) zero (B) infinity (C) -1 (D) $+1$	A O	B O	C ●	D O