

BHARAT SANCHAR NIGAM LIMITED

(A Government of India Enterprise)

Recruitment of Graduate Engineer Junior Telecom Officers-2005

(1-1/2005-Rectt.)

CLOSING DATE OF RECEIPT OF APPLICATION : 03.10.2005

EXAMINATION DATE : 27.11.2005

Bharat Sanchar Nigam Ltd. [BSNL] will recruit about 3000 [subject to variation depending on the availability of vacancies] Graduate Engineer Junior Telecom. Officers (JTOs) through a competitive examination to be held on **27.11.2005** on All India basis from amongst qualified graduate engineers. The details of reservation position is as under:-

JTO 2005	SC- 406	ST- 254	OBC- 736	OC- 1604	TOTAL- 3000
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3% of the total vacancy (1.5% for Locomotive and 1.5% for Hearing Impairment) will be reserved for PH quota.

Reservation as per Central Govt. guidelines will be applicable for SC/ST/OBC/Physically Handicapped [PH]. In respect of Physically Handicapped persons, candidates with following physical disability will be permitted:

- i. Hearing Impairment - Partially Deaf
- ii. Locomotive Impairment - one arm or one leg or both legs affected

(The minimum degree of disability is 40% in order for a person to be eligible for any concession/benefits)

1. Scale of Pay

The post of J.T.O. is in the IDA pay-scale of Rs. 9850-250-14600.

2. Selection for a Particular Circle & Service liability

The BSNL comprises a number of territorial Circles and functional Circles. The recruitment will be made centrally by BSNL and JTOs so recruited will be allotted territorial/functional Circles depending on vacancies, their choice and merit. A list of the existing territorial Circles, their respective headquarters etc., appears in *Annexure 'A'*.

The Junior Telecom Officer is a Circle-based cadre and the candidates would be selected against the vacancies in a particular Circle and required to serve minimum of 5 years in that particular Circle only or until they are promoted to All India Cadre, whichever is earlier. However, the officers are liable to be transferred anywhere in India in the interest of service. Applicants shall have the option to be considered for a particular Circle [out of *Annexure 'A'* Circles] of his/her choice in order of preference given by him/her in the application for examination. Option once exercised shall be final. Change of Circle afterwards would not be allowed. The applicants should exercise their option very carefully and indicate their choice of Circles in order of their preference. Applicants may opt for 5 [Five] Circles in order of their preference from amongst the Circles at *Annexure-'A'*. If applicants have opted for 5 Circles in order of their preference then applicants shall give "*Any where in India*" as their sixth choice but if the number of Circles opted in order of their preference is less than 5 then one of option shall be "*Any where in India*". In case it is not possible to accommodate them in any of the Circles of their choice, they shall be posted to any of the Circles where vacancies are available. A successful applicant will, however, get appointment in the Circle of choice strictly depending upon his/her position in the merit-list drawn on the basis of his/her performance in the All India competitive examination and the number of vacancies available in the Circles. In case an applicant does not indicate his/her

preference of Circle, he/she will be allotted the Circle wherever the vacancies remain unfilled irrespective of his/her position in the merit-list solely as per requirements of BSNL.

The above notwithstanding, BSNL has, however, the right to post any selected J.T.O. to any of the Circles either temporarily or on permanent basis. The decision of BSNL in this regard shall be final and binding. The service conditions, seniority etc. of selected candidates will be determined as per prevailing rules of the Corporation from time to time.

3. Eligibility

a) Nationality : Only Indian Nationals would be eligible to apply.

b) Educational Qualifications: Applicant must possess as on **03.10.2005** Bachelor of Engineering/Bachelor of Technology degree from a recognized engineering college/university in any of the following disciplines or in equivalent engineering disciplines:

- i. Telecommunication Engineering,
- ii. Electronics Engineering,
- iii. Radio Engineering,
- iv. Computer Engineering, or
- v. Electrical Engineering.

c) Age: The applicant should not be more than 30 years of age on the closing date for receipt of applications from candidates. However, this age is relaxable as per standing instructions on this subject for:-

- i) Govt. servants upto 5 years in accordance with the instructions or orders issued by the Central Govt.;

- ii) BSNL employees upto 5 years in accordance with the instructions or orders issued by the BSNL;
- iii) For Scheduled Castes & Scheduled Tribes upto 5 years;
- iv) For OBC Candidates upto 3 years;
- v) For PH candidates upto 10 years ; (15 years for SC/ST and 13 years for OBC)

(Note : Those Both legs affected PH persons who were either not allowed to appear in the GE JTO-2002 Examination or could not even apply due to non eligibility on above account, will be eligible to appear in this exam.)

- vi) For certain other categories like ex-servicemen, displaced persons from East Pakistan[now Bangladesh], repatriates from Burma and Ceylon [now Srilanka], residents of Goa, Daman & Diu, persons migrated from Kenya, Uganda, Republic of Tanzania as per instructions issued by the Central Government from time to time in this regard.

4. Mode of selection and nature of Question Paper_

The mode of selection is through an All India Competitive Examination. The examination will be of three hours duration. The Question Paper will be fully objective type with multiple options as answers to each question. The standard of paper in Engineering subjects will be that of Engineering Examination of an Indian University. The objective type examination shall be of 3 hours duration with one question paper containing 3 sections of Engineering Stream Paper-I, Engineering Stream Paper-II and General Ability Test Paper-III. The Engineering Stream Paper-I and Paper-II would include 50 questions each and General Ability test Paper-III would include 20 questions. However, there would be no separate time fixed for

attempting the separate sections nor any minimum marks fixed for each section.

Detailed syllabus appears at *Annexure 'B'*.

5. Minimum qualifying standards_

BSNL shall fix minimum qualifying marks for OC/OBC/SC/ST/PH candidates. Candidates obtaining less than minimum-qualifying marks shall not be considered for inclusion in the merit-list. The merit-list will be drawn up depending on the vacancies and the choices indicated by the candidates. The appearance of the name in the merit-list does not confer any right to the candidate for employment. A final call letter/appointment letter will be issued to the candidate after completion of all other formalities.

6. Choice of Examination Centre

Applicants are required to indicate their choice of Examination Centre [item 14 of application form] at which they wish to appear. An applicant can opt for any one of the examination centers out of the Circles indicated in the Annexure 'A' and submit the application form to the Office of the CGM of the Circle concerned at whose examination centre the applicant wishes to appear.

Admit cards will be issued to eligible applicants by the Office of the CGM concerned.

The examination centre will be the Circle Headquarters city of the CGM concerned as given in *Annexure 'A'*.

7. Fee for examination and application form

The specimen of the application form is included in this advertisement. Neatly typed [only on one side of paper] copy in A4 size [30 cms. X 20 cms.] may be used for making application. The completed application form should be sent by Registered post to the CGM concerned. The envelope containing application form should be marked "*Application for graduate engineer J.T.O. examination-2005*" in bold letters on top of the envelope.

Original advertisement or photocopy of the format in the advertisement must not be used for applying and in case a candidate submits such as application the same will not be entertained. The given application format must be separately typed.

An examination fee of Rs.500/- is payable in the form of demand draft drawn in favour of Senior Accounts Officer/Accounts Officer payable at the respective stations as given in *Annexure 'A'*. The amount of fee shall not be accepted in any other form. Fees once paid shall NOT be refunded under any circumstances nor can it be held in reserve for any other examination or selection.

Two self-addressed unstamped envelopes of 27X12 cms size may be enclosed along with the applications.

8. No Fee payable by SC/ST/PH

Applicants belonging to SC/ST/PH communities only are exempted from the examination fee.

9. Closing date for receipt of Application Forms

Application forms complete in every respect must reach on or before **03.10.2005**. Applications received after the closing date or not accompanied by the demand draft [wherever applicable] for the prescribed examination fee or incomplete in any respect shall be summarily rejected and no communication in respect of the rejected application forms shall be entertained. Fees paid shall also NOT be refunded. BSNL shall not be responsible for any postal delay.

The applicants would be admitted to the examination on the basis of the information furnished by them in their application form. They are, therefore, advised to ensure that they fulfill all eligibility conditions before applying. In case it is found at a later stage that the information furnished by an applicant is false or an applicant does not fulfill any

of the eligibility conditions, the candidature of such applicants would be cancelled and no correspondence in this regard would be entertained. Issuance of an admit card for the examination will NOT confer any right for appointment. Appointment will be solely subject to fulfillment of all eligibility conditions.

10. Training and Bond

All candidates provisionally recruited shall execute Bonds in the format specified by the BSNL indicating their willingness to serve the Circle allotted and Corporation for a period of at least 5 years from the date of their appointment as JTOs. All candidates shall, before their appointment as JTOs have to successfully undergo prescribed training as per the training plan laid down and amended by the Company from time to time.

11. List of enclosures

- a. Three identical passport size photographs out of which one should be pasted (not stapled or pinned) on the application form, duly attested, and the other two attached to the application (not to be pasted or attested)
- b. Two self addressed unstamped envelopes of 27 x 12 cms size
- c. Bank Draft for Rs.500/- (payable at par at the station of submitting the application) - [Not required for SC/ST/PH candidates]
- d. Medical certificate in respect of Physically Handicapped candidates

12. Any dispute in regard to the recruitment will be subject to the Courts/Tribunals having jurisdiction over the place of concerned Circle office of BSNL where the candidate submits his/her application.

**APPLICATION FOR EXAMINATION OF RECRUITMENT OF GRADUATE ENGINEER
JUNIOR TELECOM OFFICERS-2005**

1. Full name of the candidate:
[IN BLOCK LETTER]
2. a) Postal Address with PIN CODE to which
Communication is to be sent:
[IN BLOCK LETTER]
b) Permanent Home address with PIN CODE:
3. a) Date of Birth: ___ ___ ___ ___ ___ ___ ___ ___
 (dd) (mm) (YYYY)
[in the format dd mm YYYY e.g. 1st May 2005 will be 01-05-2005]
[As mentioned in Matriculation or Equivalent Certificate]
b) Age on <Closing date for receipt of application>
c) Whether claiming age relaxation? Yes/No

If yes, under what category, [Write the relevant category below]
3c.1. Central Govt. Servant/BSNL Employee
3c.2 SC/ST/OBC/Ex.Serviceman/PH/ others[To be specified]
4. Father's Name :
5. Place of birth and the state in which located :
6. State to which the applicant belongs :
7. a) Whether belongs to SC/ST/OBC/General :
[Write the relevant category]
b) Whether Physically handicapped : Yes/No % disability
[Medical certificate to be attached]
8. Whether ex-servicemen? If so, the total period of Military service
9. Gender: [Male/Female]
10. Choice of Circle of allotment in order of preference.

Paste a
recent
attested
Photograph of
the applicant
[Passport
Size]

[A candidate can choose upto a maximum of five Circles in order of preference. Sixth choice must be "Anywhere in India". If candidate chooses less than five Circles one of the choice must be written as "Anywhere in India"].

- i) Choice 1: [Name of Circle]
- ii) Choice 2:
- iii) Choice 3:
- iv) Choice 4:
- v) Choice 5:
- vi) Choice 6:

- 11. a) Nationality :
- b) Whether by birth / by domicile :

12. Marital status: [Married/Unmarried]

13. Details of Education/Technical qualifications

[Give details of Degrees obtained only of B.E./B.Tech & above]

13.1 Name of degree with discipline [BE/B. Tech & above]

13.2 Name of University/ Institute

13.3 Month and year of obtaining Engineering Degree

14. Choice of Examination Centre : [Name of Circle]

[An applicant can opt for any of the examination centers out of the Circles indicated in Annexure 'A' and submit the application form to the Office of the CGM of the Circle concerned at whose examination centre the applicant wishes to appear]

15. Details of application fee particulars

15.1 Demand draft No. and Date :

15.2 Amount Rs. :

15.3 Issuing Bank :

15.4 Payable in favour of at

I do hereby declare that all the statements made in the application are true, complete and correct to the best of my knowledge and belief. I understand that in the event of any particulars information given above being found false or incorrect, my candidature for the post of Junior Telecom Officer is liable to be rejected or cancelled and in the event of any misstatement or discrepancy in the particulars being detected after my appointment, my services are liable to be terminated forthwith without any notice to me.

I also understand that if appointed, I would rank junior to any J.T.O. who had been appointed earlier by the erstwhile DoT/DTS/DTO or BSNL or any other employee in the promotional cadre who had already qualified in the JTO Examination but not appointed as JTO by BSNL so far.

I understand that if appointed I would have to serve the Circle allotted for the stipulated period of five years.

Date:

Place:

Signature of the applicant

Admit Card

Identical
photograph of the
applicant as on
the application
form [Passport
size

Roll No. _____
[To be filled by the office]

Please allow Mr*/Mrs*/Ms.* _____ Son/Daughter/of
Mr** _____, whose photograph is affixed on the
admit card, to appear in the Examination for Recruitment of Graduate
Engineer Junior Telecom Officer – 2005 of the Bharat Sanchar Nigam Ltd. at
examination centre (to be given by the
office) _____ on date/time [to be given by the
office] _____.

* & ** [to be filled by applicant]

Signature.....
Designation.....

Bharat Sanchar Nigam Ltd.

Acknowledgement Slip

Received application for the Examination for Recruitment of Graduate
Engineer Junior Telecom Officer-2005 of the Bharat Sanchar Nigam Limited
from Mr/Mrs/Ms* _____ with demand draft**
No. _____ dated _____ of _____
payable to Accounts Officer [B.SN.L.]

Signature with date _____
O/o Chief General

Manager _____

Bharat Sanchar Nigam Limited

[To be filled in by the applicant

*Applicant's name

** DD particulars & Name of the Bank)

ANNEXURE-A

List of the Territorial Telecom Circles with the address to whom the applicants should send their completely filled up forms and in whose favour the Demand Draft should be drawn

(In case of any query/clarification, following Officers as at (3) may be contacted)

S. No. (1)	Name of the Territorial Circle (2)	Address to whom the application is to be sent/Examination Centre City (3)	Demand Draft to be drawn in favor of (4)
1.	Andhra Pradesh	DGM (Admn), O/o the CGM Telecom, BSNL, Andhra Pradesh Telecom Circle, Doorsanchar Bhavan, 2 nd floor, Nampalli Station Road, Hyderabad - 500 001.	Accounts Officer (Cash), O/o the CGMT AP, BSNL, Hyderabad
2.	Andaman & Nicobar	DGM (Admn.), O/o the CGM Telecom, BSNL, A&N Telecom Circle, Telephone Bhavan, Port Blair - 744 101.	Accounts Officer (Cash), BSNL, Andaman & Nicobar Telecom Circle, Port Blair-744 101
3.	Assam	DGM (Admn), O/o the CGM Telecom, BSNL, Assam Telecom Circle, Ulubari, Guwahati - 781 007.	Sr. Accounts Officer (A&P), O/o the CGMT, Assam Circle, Ulubari, Guwahati –7.
4.	Bihar	DGM (Admn), O/o the CGM Telecom, BSNL, Bihar Telecom Circle, Meghdoot Bhawan (3 rd floor), G.P.O. Compound, Patna - 800 001.	Accounts Officer (B&A), BSNL, O/o CGM, Bihar Telecom. Circle, Patna – 800 001
5.	Calcutta Telephones District	DGM (Admn), O/o the CGM Calcutta Telephones, BSNL, Telephone Bhavan, (3 rd floor) 34,B.B.D. Bag (South), Kolkata - 700 001.	Accounts Officer, BSNL, Calcutta Telephone District, Kolkata – 700 001

S. No. (1)	Name of the Territorial Circle (2)	Address to whom the application is to be sent/Examination Centre City (3)	Demand Draft to be drawn in favor of (4)
6.	Chattisgarh	DGM (Admn), O/o CGM Telecom, BSNL, Chattisgarh Telecom Circle, Khamardih, Vidhansabha Road, Raipur – 492 007.	Accounts Officer (A&B), BSNL, O/o CGMT Raipur
7.	Chennai Telephones District	DGM (Admn), O/o the CGM Chennai Telephones, BSNL, 89, Millers Road, Chennai – 600 010.	Senior Accounts Officer (C&A) HQ, BSNL, Chennai Telephones
8.	Gujarat	DGM (Mktg), O/o CGM Telecom, BSNL, Gujarat Telecom Circle, Telephone Bhavan, 5th floor, C.G. Road, Ahmedabad - 380 006.	Accounts Officer (Cash), O/o CGMT BSNL, Gujarat Telecom Circle, Ahmedabad – 6
9.	Haryana	GM (Admn), O/o the CGM Telecom, BSNL, Haryana Telecom Circle, 107, The Mall, Ambala Cantt. –133 001.	Accounts Officer (Cash), O/o CGMT, Haryana Circle, Ambala
10.	Himachal Pradesh	GM (Admn) O/o the CGM Telecom, BSNL, H.P. Telecom Circle, Block No.11, SDA Complex, Kasumpti, Shimla - 171 009.	Accounts Officer (Cash), O/o CGMT, BSNL, Shimla (H.P.)
11	Jammu & Kashmir	DGM (O), O/o the CGM Telecom, BSNL, J&K Telecom Circle, Room No.413, North Block Bahu Plaza, Rail Head Complex, Jammu Tawi – 180 012.	Accounts Officer (Cash), O/o CGM BSNL, J&K Circle, Jammu – 12
12.	Jharkhand	DGM (Admn) O/o CGM Telecom, BSNL, Jharkhand Telecom Circle, 5 th floor, Telephone Bhavan, Shaheed Chowk, Ranchi – 834 001.	Accounts Officer (B&A), O/o CGMT, Jharkhand Telecom Circle, Ranchi

S. No. (1)	Name of the Territorial Circle (2)	Address to whom the application is to be sent/Examination Centre City (3)	Demand Draft to be drawn in favor of (4)
13.	Karnataka	DGM (Staff), O/o the CGM Telecom, BSNL, Karnataka Telecom Circle, No.1, Swamy Vivekananda Road, Halasuru, Bangalore – 560 008.	Sr. Accounts Officer (Cash), BSNL, O/o the CGM, Karnataka Telecom. Circle, Bangalore – 560 008
14.	Kerala	DGM (Admn) O/o the CGM Telecom. BSNL, Kerala Telecom Circle, Thiruvananthapuram – 695 033.	Accounts Officer (Cash), O/o the CGM, Telecom, BSNL, Kerala Circle, Thiruvananthapuram - 33
15.	Madhya Pradesh	DGM (Admn), O/o the CGM Telecom. BSNL, M.P. Telecom Circle, Hosangabad Road Bhopal - 462 015.	Accounts Officer (A&B), BSNL, O/o CGMT, M.P.Circle, Bhopal
16.	Maharashtra	DGM (Admn), O/o the CGM Telecom, BSNL, Maharashtra Telecom Circle, 8 th Floor,FTN-II Building, M. G. Road, Mumbai - 400 001.	Accounts Officer (F&A), BSNL, Maharashtra Telecom. Circle, Mumbai
17.	Northern Telecom Region [New Delhi]	DGM (Admn), O/o the CGM Mtce., BSNL, Northern Telecom. Region, R.No. 257, IIInd Floor, Kidwai Bhawan, Janpath New Delhi-110 001.	Accounts Officer (Cash), BSNL, O/o CGM, (Mtce.) Northern Telecom. Region, New Delhi
18.	North East-I [Meghalaya,Mizo ram &Tripura]	DGM (Admn), O/o the CGM Telecom, BSNL, N.E.-I Telecom Circle, Shillong-793 001.	Accounts Officer (Cash), O/o the CGM Telecom, N.E.-I Circle, Shillong
19.	North East-II [Arunachal Pradesh, Nagaland & Manipur]	DGM(A & P) , O/o CGM Telecom, BSNL, N.E. – II Telecom Circle, OCB Telephone Exchange Building, Dimapur – 797 112.	Senior Accounts Officer (Cash), O/o GMTD, BSNL Dimapur, Nagaland – 797 112

S. No. (1)	Name of the Territorial Circle (2)	Address to whom the application is to be sent/Examination Centre City (3)	Demand Draft to be drawn in favor of (4)
20.	Orissa	DGM (Admn) O/o the CGM Telecom, BSNL, Orissa Telecom Circle, Bhubaneswar-751 001.	Senior Accounts Officer, (A&P), O/o the CGMT, BSNL, Orissa Circle, Bhubaneswar – 751 001
21.	Punjab	DGM (Admn.), O/o the CGM Telecom. BSNL, Punjab Telecom Circle, Plot No.2, Opposite Piccadily Cinema, Sector-34-A, Chandigarh – 160 022.	Accounts Officer (Cash), BSNL, O/o CGM, Punjab Telecom. Circle, Chandigarh
22.	Rajasthan	DGM (Admn), O/o CGM Telecom, BSNL, Rajasthan Telecom Circle, Sardar Patel Marg, 'C' Scheme, Jaipur – 302 008.	Accounts Officer (Cash), BSNL, O/o the CGM, Rajasthan Telecom.Circle, Jaipur – 302 008
23.	Tamilnadu	DGM (Admn), O/o the CGM Telecom, BSNL, Tamilnadu Telecom Circle, 80, Anna Salai, Chennai - 600 002.	Accounts Officer (Cash), BSNL, TN Circle, Chennai
24.	Uttar Pradesh [East]	DGM (Rectt./ Plg.) O/o the CGM Telecom, BSNL, UP (East) Telecom Circle, Laplace Building, 3 rd floor, (Adjacent to National Degree College), Rana Pratap Marg, Lucknow-226 001.	Accounts Officer (Cash) O/o CGMT, UP (East) Circle, Lucknow
25.	Uttar Pradesh [West]	DGM (Admn.), O/o the CGM Telecom , BSNL, UP (West) Telecom Circle, Shastri Nagar Telephone Exchange Building, Garh Road Meerut – 250 005.	Accounts Officer (Cash), BSNL, O/o CGMT UP (West) Telecom Circle, Meerut

S. No. (1)	Name of the Territorial Circle (2)	Address to whom the application is to be sent/Examination Centre City (3)	Demand Draft to be drawn in favor of (4)
26.	Uttaranchal	DGM (Admn.) O/o CGM Telecom, BSNL, Uttaranchal Telecom Circle, Windlass Complex, Rajpur Road Dehradun - 248 001.	Accounts Officer (Cash), BSNL O/o CGMT Uttaranchal Telecom Dehradun
27.	West Bengal	DGM (Admn), O/o the CGM Telecom. BSNL, West Bengal Telecom Circle, 1, Council House Street, 2 nd floor, Kolkata - 700 001.	Sr. Accounts Officer (Cash), O/o the CGM, W.B.T.C., Kolkata

**Scheme and Syllabus for the Recruitment of Graduate Engineer Junior
Telecom Officers [JTO] - 2005**

For Direct Recruitment of Junior Telecom Officers, an objective type Examination of 3 hours duration consisting of following sectional papers will be conducted:

Scheme

- A. Engineering Stream Paper - I
 - B. Engineering Stream Paper - II
 - C. General Ability Test Paper - III
-
- 1. The standard of paper in Engineering subjects will be that of Engineering Degree Examination of an Indian University.
 - 2. In the general ability test, special attention will be paid to assess the candidate's capacity for general awareness. The standard of paper in general ability test will be such as may be expected of an Engineering Graduate.
 - 3. The syllabus for engineering stream papers will be as given below.

SYLLABUS

PAPER - I

1. Materials and components

Structure and properties of Electronic Engineering materials, Conductors, Semiconductors and Insulators, Magnetic, Ferroelectric, Piezoelectric, Ceramic, Optical and Superconducting materials. Passive components and characteristics, Resistors, Capacitors and Inductors; Ferrites, Quartz crystal, Ceramic resonators, Electromagnetic and Electromechanical components.

2. Physical Electronics, Electron Devices and ICs

Electrons and holes in semiconductors, Carrier Statistics, Mechanics of current flow in a semi-conductor, Hall effect; Junction theory; Different types of diodes and their characteristics; Bipolar Junction transistor; Field effect transistors; Power switching devices like SCRs, CTOs, power MOSFETs; Basics of ICs-bipolar, MOS and CMOS types; Basics of Opto Electronics.

3. Network theory

Network analysis techniques: Network theorem, transient and steady state sinusoidal response, Transmission criteria: delay and rise time Elmore's and other definition, effect of cascading. Elements of network synthesis.

4. Electromagnetic Theory

Transmission lines: basic theory, standing waves, matching applications, microstrip lines; Basics of waveguides and resonators; Elements of antenna theory.

5. Electronic Measurements and instrumentation

Basic concepts, standards and error analysis; Measurements of basic electrical quantities and parameters; Electronic measuring instruments and their principles of working: analog and digital, comparison, characteristics, applications. Transducers; Electronic measurements of non-electrical quantities like temperature, pressure, humidity etc. Basics of telemetry for industrial use.

6. Power Electronics

Power Semiconductor devices, Thyristor, Power transistor, MOSFETs, Characteristics and operation. AC to DC convertors; 1-Phase and 3-phase DC to DC Convertors.

AC regulators. Thyristor controlled reactors, switched capacitor networks.

Inverters: Single-phase and 3-phase. Pulse width modulation. Sinusoidal modulation with uniform sampling. Switched mode power supplies.

PAPER-II

1. Analog Electronic Circuits

Transistor biasing and stabilization, Small Signal analysis. Power amplifiers. Frequency response, Wide band techniques, Feedback amplifiers. Tuned amplifiers. Oscillators. Rectifiers and power supplies. Operational Amplifier, other linear integrated circuits and applications. Pulse shaping circuits and waveform generators.

2. Digital Electronic Circuits

Transistor as a switching element; Boolean algebra, simplification of Boolean functions, Karnaugh Map and applications; IC Logic gates and their characteristics; IC logic families: DTL, TTL, ECL, NMOS, PMOS and CMOS gates and their comparison; Combinational logic circuits; Half adder, full adder; Digital Comparator; Multiplexer Demultiplexer; ROM and their applications. Flip-flops, R-S, J-K, D and T flip-flops; Different types of counters and registers; waveform generators. A/D and D/A convertors. Semiconductor memories.

3. Control Systems

Transient and steady state response of control systems; Effect of feedback on stability and sensitivity, Root locus techniques; Frequency response analysis. Concepts of gain and phase margins; Constant-M and Constant-N Nichol's Chart;

Approximation of transient response from Constant-N Nichol's Chart; Approximation of transient response from closed loop frequency response; Design of Control Systems, Compensators; Industrial controllers.

4. Communication systems

Basic information theory: Modulation and detection in analogue and digital systems; Sampling and data reconstruction. Quantization & Coding; Time division and frequency division multiplexing; Equalisation; Optical Communication: in free space & fibre optic; Propagation of signals at HF, VHF, UHF and microwave frequency; Satellite communication.

5. Microwave Engineering

Microwave Tubes and solid state devices, Microwave generation and amplifiers, Waveguides and other Microwave Components and Circuits, Microstrip circuits, Microwave antennas, Microwave Measurements, MASERS LASERS; Microwave Propagation. Microwave Communication Systems-terrestrial and satellite based.

6. Computer Engineering

Number Systems; Data representation; Programming; Elements of a high level programming language PASCAL/C; use of basic data structures; Fundamentals of computer architecture processor design; Control unit design; Memory organization. I/O System Organization. Personal computers and their typical uses.

7. Microprocessors

Microprocessor architecture - Instruction set and simple assembly language programming. Interfacing for memory and I/O. Applications of Microprocessors in Telecommunications and power system.

PAPER-III

General ability test

The candidate's comprehension and understanding of General English shall be tested through simple exercises. Questions on knowledge of current events and of such matter of everyday observation and experience in their scientific aspects as may be expected of an educated person. Questions will also be included on events and developments in Telecommunications, History of India and Geography. These will be of a nature, which can be answered without special study by an educated person.