

"INDO-TIBETAN BORDER POLICE FORCE"

(MINISTRY OF HOME AFFAIRS)

GOVT. OF INDIA

RECRUITMENT FOR THE POST OF ASSISTANT COMMANDANT **(TELECOMMUNICATION) IN ITBPF**

Online Applications are invited from male & female **eligible Indian Citizens** for filling up following vacancies to the post of **Assistant Commandant (Telecommunication)** of Central Government Group-A, Gazetted Combatised Post (Non Ministerial) on temporary basis likely to be permanent in the Indo-Tibetan Border Police Force. On joining the organization, the candidates shall be governed by ITBPF Act, 1992 and ITBPF Rules, 1994 and other Rules applicable from time to time. The post has all India liability and selected candidates can be posted anywhere in India and even abroad. This is a combatised post and selected candidates shall have to wear the rank and badges of the post as per the orders/instructions issued by the Central Government from time to time. Applications from candidates will be accepted through ON-LINE MODE only. No other mode for submission of application is allowed. **ONLINE APPLICATION MODE WILL REMAIN OPEN W.E.F. 21.01.2025 AT 00:01 AM TO 19.02.2025 AT 11:59 PM.**

2. Details of vacancies are as under:-

Name of Post	Total vacancies	UR	SC	ST	OBC	EWS
Assistant Commandant (Telecommunication)	48	21	7	3	13	4

Note:-

1. The vacancies are tentative and may increase or decrease without any notice. Any change in the number of vacancies will be intimated through ITBPF Recruitment website i.e. <https://recruitment.itbpolice.nic.in>.
2. ITBPF reserves the right to make changes in sequence of the recruitment procedure after publication of this advertisement. ITBPF also reserves the right to cancel or postpone the recruitment at any stage due to administrative reasons.
3. 10% vacancies are reserved for Ex-Servicemen. In case vacancy reserved for Ex-servicemen remains unfilled due to non-availability of eligible or qualified candidates, the same shall be filled by non Ex-serviceman candidates of respective categories.



3. **Pay Scale and other allowances:**

a) Pay	Level-10 (Rs. 56,100-1,77,500) in the Pay Matrix (as per 7 th CPC).
b) Other allowances	Post will carry Dearness Allowances, Special Compensatory Allowance (while posted in specified border areas) free accommodation or HRA, Transport Allowance, Leave Travel Concession, free medical facilities and any other allowance as admissible in the Force from time to time under the Rules/Instructions.
c) On appointment	The candidates shall be entitled for the pension benefits as per the "New Restructured Defined Contributory Pension Scheme" applicable for the new entrants to the Central Government Services w.e.f. 01/01/2004.

4. **ELIGIBILITY CONDITIONS:**

a)	Age Limit: Not Exceeding 30 years Educational Qualifications:- Essential : i. Bachelor's Degree in Telecommunication Engineering or Electronics and Communication or Electronics and Instrumentation or Engineering from a recognized University or Institution.
b)	Cut-off date for Age and Relaxations : Crucial date for determining the age limit will be the closing date i.e. 19th February, 2025 (19/02/2025). Candidates should not have been born earlier than 20, February, 1995 (20/02/1995) and later than 19, February, 2007 (19/02/2007). Note:- i. The date of Birth as recorded in the Matriculation certificate available on the date of submission of application shall be accepted as proof for determining the age and no subsequent request for its change will be considered or granted. ii. The OBC Candidates must produce OBC (NCL) Certificate based on the income for the financial year 2023-24, 2022-23 and 2021-22 and issued on/after 01.04.2024 (after completion of financial year 2023-24) but not later than the closing date of the application for the examination. iii. Candidates who wish to be considered against reserved vacancies or seeking age relaxation must submit requisite certificate issued by the competent authority, in the prescribed format when such certificates are sought by the Recruitment Board. Otherwise, their claim for SC/ST/OBC(NCL) status will not be entertained and their candidature/applications will be considered under Unreserved (UR) category. iv. The formats of the certificates Annexure-I, II, II-A, III, IV, V, VI & VII are annexed. Certificates obtained in any other format will not be accepted. v. Age relaxation available to different categories of eligible candidates are as under:-

S.N.	Category	Age-Relaxation permissible beyond the upper age limit
1	SC	5 years
2	ST	5 years
3	OBC (Non Creamy Layer)	3 years
4	Ex-Servicemen (Unreserved/General)	3 years after deduction of the military service rendered from the actual age.
5	Ex-Servicemen (SC)	8 years (3 years + 5 years) after deduction of the military service rendered from the actual age.
6	Ex-Servicemen (ST)	8 years (3 years + 5 years) after deduction of the military service rendered from the actual age.
7	Ex-Servicemen (OBC)	6 years (3 years + 3 years) after deduction of the military service rendered from the actual age.
8	*Government Servant (Central Government Civilian Employees)	05 Years in accordance with the instructions or orders issued by the Central Government.
9	Children and dependent of victims KILLED in the 1984 riots OR communal riots of 2002 in Gujarat.	UR/EWS- 5 years OBC (NCL)- (3+5) 8 years SC & ST- (5+5) 10 years

* The term "Civilian Central Government Employees" will apply to persons who are defined as "Government Services" in the Central Civil Service (Classification, Control and Appeal) Rules, 1965 as amended from time to time.

Explanation of Ex-Serviceman:-

An Ex-Serviceman means a person:

(i) Who has served in any rank whether as a combatant or non-combatant in the Regular Army, Navy, Air Force of the Indian Union, and

a) Who either has been retired or relieved or discharged from such service whether at his own request or being relieved by the employer after earning his or her pension.

or

b) Who has been relieved from such service on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension.

or

c) Who has been released from such service as a result of reduction in establishment.

or

(ii) Who has been released from such service after completing the specific period of engagement, otherwise than at his own request, or by way of dismissal, or discharge on account of misconduct or inefficiency and has been given a gratuity: and includes personnel of the Territorial Army, namely, pension holders for continuous embodied service or broken spells of qualifying service;

or

(iii) Personnel of the Army Postal Service who are part of regular Army and retired from the Army Postal Service without reversion to their parent service with pension, or are released from the Army Postal Service on medical grounds attributable to or aggravated by military service or circumstances beyond their control and awarded medical or other disability pension;

or

(iv) Personnel, who were on deputation in Army Postal Service for more than six months prior to the 14th April, 1987.

or

(v) Gallantry award winners of the Armed Forces including personnel of Territorial Army;

or

(vi) Ex-recruits boarded out or relieved on medical ground and granted medical disability pension.

c) Physical Standards:

The minimum physical standard for the candidates of all categories will be as follows:-

Minimum Height in Cms		Minimum Chest in Cms		Weight	
Male	Female	Male	Female	Male	Female
165	157	Unexpanded- 81cms Expanded- 86 cms	Not Applicable	Proportionate to height and age. As per medical standard*.	

Note:-

*As prescribed in uniform guidelines for medical examination test for recruitment in CAPFs & ARs circulated by ADG (Medical), CAPFs & ARs vide their U.O. No. V-18011/24/ADG(Med)/WP-RKK/2015-1113 dated 26.05.2015.

Medical Standards (Male & Female) :

- Eye Sight :- As prescribed in uniform guidelines for medical examination test for recruitment in CAPFs & ARs circulated by ADG (Medical), CAPFs & ARs vide their U.O. No. V-18011/24/ADG(Med)/WP-RKK/2015-1113 dated 26.05.2015 :-

EYE SIGHT (WITH OR WITHOUT GLASSES)

Distant Vision				Near Vision	
Better Eye	Better Eye	Worse Eye	Worse Eye	Better Eye	Worse Eye
6/6	6/9	6/12	6/9	J.I or (N6)	J.II Or (N9)

- The candidate must not have knock-knees, flat foot, varicose vein or squint in eyes and they should possess high colour vision. The candidates will be tested for colour vision by Ishahara's test as well as Edrich-Green Lantern test. An colour blind person will not be eligible for appointment. If at any stage of service career, a person is found to be colour blind, he/she will be boarded out as per SHAPE policy in vogue.
- They must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of the duties.

iii. Tattoos: - i) Content: Being a secular country, the religious sentiments of our countrymen are to be respected and thus, tattoos depicting religious symbol or figures and the name, as followed in Indian Army are to be permitted. ii) Location: Tattoos marked on traditional sites of the body like inner aspect of forearm but only left forearm, being non saluting limb or dorsum of the hands are to be allowed. iii) Size: Size must be less than $\frac{1}{4}$ of the particular part (Elbow or Hand) of the body.
Note :- In case, a candidate has undergone removal of tattoo (s) prior to appearing for recruitment process and the same has faded substantially, this will be treated as a “scar” and not a tattoo. Such candidates will be permitted to undergo the entire selection process with the approval of Presiding Officer of the recruitment Board. Further, the scar resulting due to removal of tattoo will be reviewed by the Medical Board of Officer during Detailed Medical Examination.

5. HOW TO APPLY AND BY WHICH DATE:

a)	Eligible and interested candidates need to apply online through ITBPF website https://recruitment.itbpolice.nic.in . Candidates are advised to fill the online application form after reading the instructions carefully and should provide genuine and functional e-mail ID and Mobile number at the time of filling online application form. Details as required under various segments should be mentioned clearly, correctly and logically. As the applications need to be submitted online only, applications received offline shall not be considered and will be rejected summarily.
b)	Candidates are to fill all information e.g. Gender/Category (UR/SC/ST/OBC (NCL)/EWS etc), Employment status/Riots affected, etc. in the profile created on ITBP recruitment website before submission of online application. Any false/incorrect information in online application will lead to cancellation of candidature and no request for change in such details will be considered at later stages.
c)	APPLICATION FEE & MODE OF PAYMENT- Male candidates belonging to UR, OBC and EWS category applying for this recruitment will have to pay Rs. 400/- (Rupees Four hundred only) as application fee through the online payment gateway system on https://recruitment.itbpolice.nic.in. Application received with any other mode of fee payment will be summarily rejected. Candidates belonging to Scheduled Caste, Scheduled Tribe, Females and Ex-servicemen are exempted from paying the fee. Note:- i. Fee once paid will not be refunded under any circumstances. ii. Fee paid by modes other than online mode will not be accepted and the applications of such candidate will be rejected forthright. Besides above, the payment made in such cases shall stand forfeited.
d)	Candidates working in Central/State Government/ Autonomous/ Statutory Bodies/ Public Sector Undertaking etc. applied to the post are required to furnish “No Objection Certificate” in original as per Annexure-V issued by the employer at the time of verification of documents. The candidature of candidates who fail to submit “No Objection Certificate” at the time of documentation shall be summarily rejected.

e)	Online application mode will be opened w.e.f. 21, January, 2025 (21/01/2025) at 00:01 am and will be closed on 19 th February, 2025 (19/02/2025). at 11:59 pm.
f)	Procedure for online submission of application is available on ITBPF recruitment website https://recruitment.itbpolice.nic.in .
g)	Candidates are strongly advised to apply well in time without waiting for the last date for submission of online application form.

6. SELECTION PROCESS:

- Admit Cards to the candidates will be issued online mentioning the date and venue of recruitment test. Candidature of candidates who are issued online admit cards will remain provisional till they are finally selected and submit all related documents/certificates in original and in prescribed format at the stage of verification of original documents.
- Candidates are required to bring a clear & legible print out of their online application form & admit card; else they will not be permitted to enter the venue of Physical Efficiency Test (PET) & Physical Standard Test (PST).**

Note:-

- Before start of PET/PST, the candidates will undergo thorough verification of identity including Biometric capture.
 - Biometric identification of candidates can also be verified at any stage of recruitment.
 - It is candidate's responsibility to check before hand that the biometric machines are able to capture the fingerprint image. In case, if the biometric machine is not able to capture the fingerprint image due to Mehndi, wax, etc. then, the candidate will not be allowed to appear in the examination.
 - Failure in biometric verification at any stage will lead to cancellation of candidature.
- c. Candidates will have to undergo the following recruitment tests :-

SN	EVENTS	REMARKS																
1.	PHYSICAL EFFICIENCY TEST (PET)	i) The events of the PET are as follows:- For Male:-<table><tr><td>Race 100 Mtrs</td><td>To be completed within 18 seconds.</td></tr><tr><td>Race 800 Mtrs</td><td>To be completed within 4 minutes</td></tr><tr><td>Long Jump</td><td>11 Feet (3 chances to be given)</td></tr><tr><td>Shot put (7.26kgs)</td><td>14 Feet</td></tr></table>For Female:-<table><tr><td>Race 100 Mtrs</td><td>To be completed within 20 seconds.</td></tr><tr><td>Race 800 Mtrs</td><td>To be completed within 5 minutes</td></tr><tr><td>Long Jump</td><td>9 Feet (3 chances to be given)</td></tr><tr><td>Shot put (7.26kgs)</td><td>Not applicable</td></tr></table>	Race 100 Mtrs	To be completed within 18 seconds.	Race 800 Mtrs	To be completed within 4 minutes	Long Jump	11 Feet (3 chances to be given)	Shot put (7.26kgs)	14 Feet	Race 100 Mtrs	To be completed within 20 seconds.	Race 800 Mtrs	To be completed within 5 minutes	Long Jump	9 Feet (3 chances to be given)	Shot put (7.26kgs)	Not applicable
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Race 800 Mtrs	To be completed within 5 minutes																	
Long Jump	9 Feet (3 chances to be given)																	
Shot put (7.26kgs)	Not applicable																	

	ii) No marks will be awarded for this test and PET shall be qualifying in nature. Candidates have to qualify each event of PET, those who do not qualify shall be eliminated. There is no provision of appeal for Physical Efficiency Test (PET). (iii) On reporting of female candidates for Physical Efficiency Test (PET) & Physical Standard Test (PST), a self declaration indicating about her pregnancy status shall be submitted. In case, if she declares that she is not pregnant then, she may be allowed to participate in the PET/PST. In case of false declaration, all the risk for undergoing PET/PST will be of her own. (iv) If, the female candidate declares that she is pregnant before PET/PST, then a confirmatory pregnancy test to be done and in case she is found to be pregnant, irrespective of duration of pregnancy, she may be declared temporary unfit and her appointment shall be held in abeyance until the confinement is over. However, female candidate who are declared temporary unfit will require to appear and qualify in remaining stages of recruitment i.e. PST, Written Examination, Documentation and Medical Examination. The vacancy against which a women candidate was selected will be kept reserved for her. She will be re-examined for Physical Standard Test (PST)/Physical Efficiency Test (PET) six weeks after the date of confinement, subject to the production of the medical certificate of fitness from a registered medical practitioner. If she is found fit, she may be appointed to the post kept reserved for and allow the benefit of seniority in accordance with the instructions of the Government, as amended from time to time. In case, a female candidate is found negative for pregnancy, she may be allowed to participate in the PET/PST. However, it shall be mandatory for temporary unfit female candidate to appear and qualify PST, Written Examination, Documentation and Detailed Medical Examination/Review Medical Examination and has to secure place in final selection list of respective category. Note:- PET will not be held for Ex-servicemen. However, they require to qualify the requisite PST, Written Examination, Documentation and Medical Examination.
Physical Standard Test (PST)	(i) Candidates who qualify in PET will be screened for Height, Weight and Chest measurement (Chest measurement for male candidates only). Those who do not meet the required physical measurements, as applicable will be eliminated at that stage and rejection slip shall be issued by the Presiding Officer.

		(ii) Physical Standard of female candidates shall be measured by female staff only. Chest measurement of female candidates should not be taken. Besides, in case of female pregnant candidates shall be dealt as per instructions issued by the Central Government for PET/PST stage. (iii) Candidates who fail to qualify PST shall be eliminated from that stage and rejection slip shall be issued by the Presiding Officer. (iv) Rejection slip for less in height and chest will be issued at the time of PST. Board shall ensure that measurement is mentioned in writing in the rejection slip. In case, if candidate is not satisfied with the physical measurement recorded by the Board, he/she may make a representation/appeal in writing to the Presiding Officer of the Recruitment Board on the same day for re-measurement. In such case, the physical measurement of aggrieved candidate(s) shall be measured by the Presiding Officer himself and shall dispose off the representation/appeal immediately in writing to the candidate then and there. In case any candidate refuse to sign or leave the PST centre without signing the rejection slip, the recruitment board should endorse the remarks in the rejection slip as "candidate refused to sign/candidate left without receiving rejection slip/candidate did not turn up to receive rejection slip" and same may be kept in record properly after duly signed by the Presiding Officer of the board. (v) Underweight/overweight candidates will be allowed to participate for next stage of recruitment and shall not be debarred at PST stage. The final decision on fitness/unfitness due to underweight/overweight will be decided at the time of Detailed Medical Examination (DME) based on the weight and age on the day of DME and the height as measured by the PST Board. (vi) The decision of the Presiding Officer will be final and no further appeal or representation in this regard will be entertained thereafter. There is no provision of appeal for Physical Efficiency Test (PET).
3	Biometric Identification	Candidates will be subjected to biometric verification at each stage of recruitment.



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Written Examination

(i) The candidates who qualify in Physical Standard Test (PST) will be required to undergo written examination. Admit cards to the candidates, will be issued online by mentioning date and venue of written examination. Candidates have to download online admit card from ITBPF recruitment website i.e. <https://recruitment.itbpolice.nic.in>.

ii) The written examination will be carried in two parts. i.e. Paper-I and Paper-II will be objective nature. Each paper will carry 100 marks each. **The question will be based on the job profile & its requirements, Mode of written test i.e. OMR or Computer based test (CBT) will be at the discretion of ITBPF.** The pattern of question paper of Written Examination will be as under:-

PAPER-I (OBJECTIVE TYPE) CBT/OMR Based

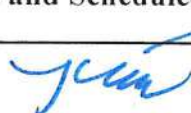
Subject	No. of questions	Marks	Time
General English	20 Question	20 Marks	Two Hours
General Studies & Aptitude	50 Question	50 Marks	
Reasoning Ability Objective	30 Question	30 Marks	
Total	100 Question	100 Marks	

PAPER-II (Objective Type) CBT/OMR Based

Subject	No. of questions	Marks	Time
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		1. Basic Electronics Engineering 2. Basic Electrical Engineering 3. Materials Science 4. Electronic Measurements and Instrumentation 5. Network Theory 6. Analog and Digital Circuits & Communication Systems 7. Control Systems 8. Computer Fundamentals, Organization and Architecture. 9. Electro Magnetics 10. Advanced Electronics Topics 11. Advanced Communication Topics 12. Electrical Materials 13. Electric Circuits and Fields 14. Electrical and Electronic Measurements 15. Computer Fundamentals 16. Systems and Signal Processing 17. Power System 18. Power Electronics and Drives (Detailed Syllabus is enclosed at Annexure-VIII)	100 Question	100 Marks	Two Hours
		Note:- Minimum qualifying marks in written examination in each papers separately shall be 50% for Unreserved/OBC/Ex-Servicemen/EWS and 45% for Scheduled Castes and Scheduled Tribes.			



		i) Answer Key of the question paper will be uploaded on ITBPF recruitment website i.e. https://recruitment.itbpolice.nic.in after the written examination is completed. ii) No electronic gadgets including Mobile Phones or any accessories shall be allowed inside examination hall. However, scientific calculator may be allowed for technical part of written test. During the written examination only materials like clipboard, pen pencil, sharpener, eraser etc shall be allowed. iii) Candidates found copying or using any unfair means should be disqualified and debarred from further test. An endorsement also be made in all such confiscated answer sheets by the Board/Observer to this effect. iv) No representation for revaluation of answer sheet of written examination or re-conduct of written examination will be entertained. Note:- Candidate should note that there will be penalty (negative marking) for wrong answer marked by candidate in objective type question paper.
5	Checking of documents	The candidates declared qualified in the Written examinations and equal to five times the number of vacancies advertised in each category will be put through verification of original documents. Testimonials of the candidates will be checked before Interview. Original documents will be returned on the spot after verification and self attested copies of certificates will be retained with the application. Original copies of following documents will be required for verification :- (i) Educational Certificate(s) alongwith Course certificate(s), as required. (ii) Date of birth Certificate (Matriculation or 10th Class Certificate). (iii) Professional/Experience Certificate, if any. (iv) Scheduled Caste (SC) and Scheduled Tribes (ST) Certificate as per Annexure-'I', OBC certificate as per Annexure-'II' and Economically Weaker Sections (EWSs) Certificate (valid for the year 2023-2024) as per Annexure-'III' (if belonging to any of these categories) issued by an authority not lower than Tehsildar or SDO. Certificates obtained in any other format will not be accepted. Candidates claiming OBC status may note that certificate on non creamy layer status as per Annexure-'II-A' should have been obtained within three years before the closing date i.e. 19/02/2025

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		(v) Persons serving in Government Services applying for the post are required to furnish “No Objection Certificate” in original as per Annexure-‘V’ issued by their employer at the time of physical verification of documents. Candidates who fail to submit N.O.C. at the time of documentation shall be summarily rejected. (vi) Domicile Certificate issued by Local Revenue Authorities or PAN Card or Aadhar Card or Driving License or Voter Card etc. for verification of citizenship. In case of West Pakistani Refugees settled in Jammu and Kashmir (UT), they are required to produce Certificate in the format attached as Annexure-‘IV’ issued by the Sarpanch/Numberdar of the candidate’s village to the effect that the person belonged to the West Pakistani Refugees Category, along with a copy of Electoral Roll showing the name of the candidate in the voter list for elections to the Parliamentary Constituency. (vii) Discharge certificate in case of Ex-Servicemen. (viii) Four latest passport size photographs.
6	Interview	Interview (50 Marks) The candidates declared qualified in the Written examinations and equal to five times the number of vacancies advertised in each category will be put through an documents verification/Interview. ii. Candidates will be shortlisted for interview on the basis of marks secured in written test. iii. Profession related experience, additional qualification, extra curricular activities for participation in sports/debate/dramatics/music/photography/NCC etc will be given consideration at the time of Interview.

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7	Merit List	i. Merit lists in each category namely, UR, EWS, Ex-Servicemen, SC, ST and OBC(NCL) will be drawn on the basis of total marks obtained by the candidates in the written examination and Interview. ii. SC, ST, EWS & OBC(NCL) candidates who are selected on their own merit without relaxed standards along with candidates belonging to other communities will not be adjusted against the reserved share of vacancies. Such SC, ST, EWS & OBC (NCL) candidates shall be accommodated against the general/unreserved vacancies as per their position in the overall merit list. iii. In case of recruitment to the vacancy reserved for Ex-servicemen and those remained unfilled due to non-availability of eligible or qualified Ex-servicemen candidates, the same shall be filled up from the Non Ex-servicemen candidates as per merit list of respective categories. iv. The candidates shall be shortlisted for Detailed Medical Examination (DME) as per the category wise vacancies on the basis of this merit. The number of candidates to be examined in DME will be as per category wise vacancies enhanced by 100% (100% in extended list) in each category so as to cater for the failure in DME/RME.
8	Resolution of tie cases	Tie Principle:- If two or more candidates secure equal marks in aggregate, the tie(s) may be resolved in accordance with the following principles:- a. The candidate getting more marks in written aggregate will be ranked higher. b. If the marks in written paper is also equal, the candidate older in age will be ranked higher. c. If the tie still persists, the candidate whose name comes first in the alphabets order (English) will be kept higher in the merit.
9	Detailed Medical Examination	Category-wise candidates shortlisted for DME on the basis of marks secured by them in written examination and interview shall undergo DME so as to assess their fitness for appointment in ITBPF as per prescribed standards in terms of Uniform Guidelines for Recruitment Medical Examination for GOs and NGOs in CAPFs and AR issued vide MHA U.O. No. A.VI-1/2014-Rectt (SSB) dated 20.05.2015 and A.VI.I/14-Rectt(SSB) dated 24.08.2015 and as amended from time to time, by the Government. (ii) Female candidates shall be examined by Female Medical Officer(s).

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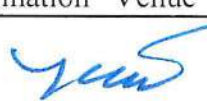
10	REVIEW MEDICAL EXAMINATION (RME)	(i) Candidates will either be declared "FIT" or "UNFIT" in medical examination test and those who will be declared unfit will be allowed to undergo Review Medical Examination (RME), provided they give their written consent by appending their signature on the intimation, indicating the reasons for being unfit in the prescribed Annexure-'VII' given by the Presiding Officers/Chairman of the recruitment centre. (ii) The consent for RME in the prescribed Annexure duly signed by the candidate will be submitted within 24 hours after he/she is informed for his/her unfitness in Detailed Medical Examination (DME). (iii) Review Medical Examination (RME) of the candidate will be conducted in continuation of Detailed Medical Examination Test preferably on the next day. (iv) The candidates who have been declared unfit in DME will be briefed about the procedure for filling an appeal for RME at the venue. (v) There should be no provision of "Temporary Unfit" Medical Officers shall give their verdict as "FIT" or "UNFIT" in respect of each candidate. (vi) The decision of ITBPF Board of Medical Officers shall be final for declaring a candidate Fit or Unfit in DME/RME.
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7. No travelling allowance will be admissible to candidates for journeys up to 250 km. For journey in excess of 250 km, the candidate himself will have to bear the expenses for initial 250 km on each of the outward and return journeys for the remaining distance (over the initial 250 km), a single Second class railway fare or actual bus fare, depending on the mode of travel, may be paid to the candidates, called for interview by the shortest route from the candidates normal place of residence or the place from which the journey is actually performed, whichever is nearer to the place of interview and back to the same station.

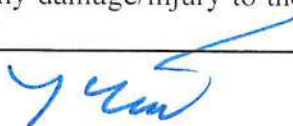
However, in the case of candidates belonging to SC/ST communities, 2nd class rail fare or bus fare shall be payable to the candidates provided that the fare of the first 30 kms for both outward and return journey is borne by the candidate.

8. GENERAL INSTRUCTIONS:

(1)	If candidates are found to be indulged at any stage in any of the malpractices listed below during the conduct of recruitment or thereafter, their candidature for this recruitment will be cancelled :- - Taking away any Examination related material such as OMR sheets, Rough Sheets, Answer Sheet etc. from the examination hall or passing it on to unauthorized persons during the conduct of examination. - Leaving the Examination Venue without prior permission of the
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	Invigilator. - Assault, use of force, causing bodily harm, misbehaving, intimidating or threatening in any manner with the examination functionaries' i.e. Supervisor, Invigilator, Security Guard or ITBPF representatives etc. - Obstruct the conduct of examination/instigate other candidates not to take the examination. - Making statements which are incorrect or false, suppressing material information, submitting fabricated documents, etc. - Obtaining support/ influence for his/her candidature by any irregular or improper means in connection with his/her candidature. - Possession of Mobile Phone in either 'switched on' or 'switched off' mode. - A person who is associated with the conduct of the examination in any manner, whatsoever. - Damaging examination related infrastructure/equipment. - Appearing in the Exam with forged Admit Card, identity proof, etc. - Possession of fire arms/lethal weapons during the examination. - Threatening/ intimidating examination functionaries with weapons/fire arms. - Using unfair means in the examination hall like copying from unauthorized sources such as written material on any paper or body parts, etc. - Possession of Bluetooth Devices, spy cameras, and any other electronic gadgets except as mentioned in para 6(c)(4)(ii) in the examination hall. - Impersonate/Procuring impersonation by any person. - Taking snapshots, making videos of question papers or examination material, labs, etc. - Sharing examination terminal through remote desktop softwares/Apps/ LAN/WAN, etc. - Attempt to hack or manipulate examination servers, data and examination systems at any point before, during or after the examination. Note : ITBPF may also report the matter to Police/Investigating Agencies etc. as deemed fit, for taking further necessary action.
(2)	All candidates who have been called for PET, PST will bring a clear and legible print out of the online application form for purpose of identification else they will not be permitted to enter the venue. The print out will be retained by ITBPF staff for office use.
(3)	Candidates are to ensure to keep sufficient number of same passport size photos used by them in filling the online application form. The candidates are also advised to bring same passport size photos submitted with online application form at all stages of recruitment.
(4)	Verification of original documents will be conducted before Detailed Medical Examination (DME); therefore candidates are advised to confirm their eligibility in all respects to avoid any disappointment at later stage.
(5)	Departmental candidates should submit in original a "No Objection Certificate" from their employer at the time of documentation else their candidature will be rejected.
(6)	Admit card to the eligible candidates will be issued online by mentioning date and venue. Candidates have to download online admit card from ITBPF recruitment website i.e. https://recruitment.itbpolice.nic.in. Therefore, candidates should provide genuine and functional e-mail ID and Mobile number at the time of filling online application form. ITBPF will not be responsible in case of non receipt of admit card due to technical and other reasons.
(7)	ITBPF shall not be responsible for any damage/injury to the individual sustained during the course of recruitment process.



(8)	Candidates are advised to beware of touts or not to fall prey to the unscrupulous elements. Recruitment in ITBPF is totally transparent, fair and purely on the basis of performance of the aspirants. No candidate is required to pay any money in cash or otherwise, for recruitment in ITBPF except nominal application fee. If someone approaches any candidate, asks for money or any other favour, they may report the matter to the recruitment board or the local police.
(9)	ITBPF will not be responsible for any power failure, electronic, internet related problems, etc faced by the candidates while applying online.
(10)	Candidates shall be required to serve in the Force for a minimum period of 10 years. If any person after joining the service wants to resign from the service before the expiry of 10 years, he/she is required to refund a sum equal to three months' pay and allowances attached to the post or the cost of training imparted to him/her by the Force, whichever is higher.
(11)	Selected candidates shall have to undergo Basic Training and such other courses as prescribed in the Force from time to time.
(12)	No correspondence will be entertained from ineligible candidates whose applications have been rejected.
(13)	Candidates having physically deformities and disabilities are not eligible to apply for this examination.
(14)	Any further information/notice in respect to the subject recruitment will be published/updated on https://recruitment.itbpolicen.nic.in only. Hence, all candidates are advised to visit this website regularly.
(15)	Candidates should come prepared for more than one day stay under their own arrangements at the Recruitment Centre.
(16)	Incomplete applications will be summarily rejected and no correspondence in this regard will be entertained.
(17)	Change in category will NOT be entertained at later stage by ITBPF and the candidature of such candidate shall be cancelled.
(18)	Applications received after the last date, as mentioned above will not be accepted.
(19)	All disputes and differences, if any, will be subject to the jurisdiction of the courts within the territorial limits of Delhi only.
(20)	For any queries, complaints or clarification, the candidates can write an e-mail comdtrect@itbp.gov.in or call on Helpline number i.e. 011-24369482 & 24369483.

9. **Disclaimer:** Information given in this advertisement and on website are guidelines only. In case of any ambiguity, the existing rules and regulations of ITBPF/Govt. of India will be final.


DIG (Recruitment)
Directorate General, ITBPF


18/01/2025
Sd/- DIG (Recruitment)

18/01/2025
Sd/- DIG (Recruitment)

**FORM OF CERTIFICATE TO BE PRODUCED BY A CANDIDATE BELONGING TO
SCHEDULED CASTE OR SCHEDULED TRIBE APPLYING FOR APPOINTMENT
TO POSTS UNDER THE GOVERNMENT OF INDIA**

A candidate who claims to belong to one of the Scheduled Caste or the Scheduled Tribes should submit in support of his/her claim an attested/certified copy of a certificate in the form given below, from the Sub-Divisional Officer or any other officer as indicated below of the District in which his/her parents (or surviving parent) ordinarily reside who has been designated by the State Government concerned as competent to issue such a certificate. If both his/her parents are dead, the officer signing the certificate should be of the district in which the candidate himself/herself ordinarily resides otherwise than for the purpose of his/her own education. Wherever photograph is an integral part of the certificate, the ITBPF would accept only attested photocopies of such certificates and not any other attested or true copy.

The form of the certificate to be produced by Scheduled Castes and Scheduled Tribes candidates applying for appointment to posts under Government of India.

This is to certify that Shri/Shrimati/Kumari* _____ son/daughter of _____ of village/town* _____ in District/Division* _____ of the State/Union Territory* _____ belongs to the Caste/Tribes _____ which is recognized as a Scheduled Castes/Scheduled Tribes* under:-

The Constitution (Scheduled Castes) order, 1950 _____, the Constitution (Scheduled Tribes) order, 1950 _____, the Constitution (Scheduled Castes) Union Territories order, 1951* _____ the Constitution (Scheduled Tribes) Union Territories Order, 1951* _____

(As amended by the Scheduled Castes and Scheduled Tribes (Modification) Order, 1956, the Bombay Reorganization Act, 1960, the Punjab Reorganization Act, 1966, the State of Himachal Pradesh Act, 1970, the North Eastern Areas Reorganization Act, 1971 and the Scheduled Castes and Scheduled Tribes Orders (Amendment) Act, 1976)

The Constitution (Jammu & Kashmir) Scheduled Castes Order, 1956.

The Constitution (Andaman & Nicobar Islands) Scheduled Tribes Order, 1959 as amended by the Scheduled Castes and Scheduled Tribes order (Amendment Act), 1976*.

The Constitution (Dadra and Nagar Haveli) Scheduled Castes Order 1962.

The Constitution (Dadra and Nagar Haveli) Scheduled Tribes Order 1962 @.

The Constitution (Pondicherry) Scheduled Castes Order 1964 @.

The Constitution (Uttar Pradesh) Scheduled Tribes Order 1967 @.

The Constitution (Goa, Daman & Diu) Scheduled Castes Order 1968 @.

The Constitution (Goa, Daman & Diu) Scheduled Tribes Order 1968 @.

The Constitution (Nagaland) Scheduled Tribes Order 1970 @.

The Constitution (Sikkim) Scheduled Castes Order 1978 @.

The Constitution (Sikkim) Scheduled Tribes Order 1978 @.

The Constitution (Jammu & Kashmir) Scheduled Tribes Order 1989 @.
The Constitution (Scheduled Castes) Orders (Amendment) Act, 1990 @.
The Constitution (Scheduled Tribes) Orders (Amendment) Ordinance, 1991 @.
The Constitution (Scheduled Tribes) Orders (Second Amendment) Act, 1991 @.
The Constitution (Scheduled Tribes) Orders (Amendment) Ordinance, 1996

2. Applicable in the case of Scheduled Castes, Scheduled Tribes persons who have migrated from one State/Union Territory Administration. This certificate is issued on the basis of the Scheduled Castes/ Scheduled Tribes certificate issued to Shri/Shrimati _____ Father/Mother _____ of _____ Shri/Shrimati/Kumari* _____ of village/town* in District/Division* _____ of the State/Union Territory* _____ who belongs to the _____ Caste/Tribe which is recognized as a Scheduled Caste/Scheduled Tribe in the State/Union Territory* issued by the _____ dated _____.

3. Shri/Shrimati/Kumari and /or* his/her family ordinarily reside(s) in village/town* _____ of _____ District/Division* _____ of the State/Union Territory of _____.

Signature _____
** Designation _____
(with seal of
office)
State/Union
Territory

Place _____

Date _____

* Please delete the words which are not applicable

@ Please quote specific Presidential Order

Delete the paragraph which is not applicable.

NOTE: The term, ordinarily reside (s) used here will have the same meaning as in section 20 of the Representation of the People Act, 1950.

** The authorities competent to issue Caste/Tribe Certificates

- i. District Magistrate/Additional District Magistrate/Collector/Deputy Commissioner/Additional Deputy Commissioner/Dy. Collector/Ist Class Stipendiary Magistrate/Sub-Divisional Magistrate/Extra-Assistant Commissioner/ Taluka Magistrate/Executive Magistrate.
- ii. Chief Presidency Magistrate/Additional Chief Presidency Magistrate /Presidency Magistrate.
- iii. Revenue Officers not below the rank of Tehsildar.
- iv. Sub-Divisional Officers of the area where the candidate and/or his family normally resides.

NOTE: ST candidates belonging to Tamil Nadu State should submit caste certificate ONLY FROM THE REVENUE DIVISIONAL OFFICER.

ANNEXURE-'II'

FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES
(OBC) APPLYING FOR APPOINTMENT TO POSTS UNDER THE

GOVERNMENT OF INDIA

This is to certify that Shri / Smt. / Kumari
_____ Son / Daughter of Shri / Smt.
_____ of Village/Town _____ in
District/Division _____ in the State/Union
Territory _____ belongs to the _____ Community
which is recognized as a backward class under the Government of India, Ministry of
Social Justice and Empowerment's Resolution No. _____ dated
_____. * Shri/Smt/Kumari _____ and/or
his/her family ordinarily reside(s) in the _____ District/Division of
the _____ State/Union Territory. This is also to certify that
he/she does not belong to the persons/sections (Creamy Layer) mentioned in Column 3
of the Schedule to the Government of India, Department of Personnel & Training O.M.
No. 36012/22/93-Estt.(SCT) dated 08.09.1993**.

District Magistrate

Deputy Commissioner etc.***

Dated:

Seal

*- The authority issuing the certificate may have to mention the details of Resolution of Government of India, in which the caste of the candidate is mentioned as OBC.

** - As amended from time to time.

***- The authorities competent to issue the Certificate:-

- a. District Magistrate/Additional Magistrate/Collector/Deputy Commissioner/
Additional Deputy Commissioner/Dy. Collector/1st Class Stipendiary
Magistrate/Sub-Divisional Magistrate/Taluka Magistrate/Executive Magistrate
/Extra-Assistant Commissioner (not below the rank of first class Stipendiary
Magistrate).
- b. Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency
Magistrate.
- c. Revenue Officers not below the rank of Tehsildar.
- d. Sub-Divisional Officers of the area where the candidate and/or his family
normally resides.

Note: - The term "Ordinarily" used here will have the same meaning as in section 20 of the Representation of the People Act, 1950.

DECLARATION/UNDERTAKING BY OBC CANDIDATES REGARDING
NON CREAMY LAYER STATUS

I, _____ Son/Daughter of Shri _____ resident of village/town/city _____ District _____ State _____ hereby declare that I belong to the _____ community which is recognised as a backward class by the Government of India for the purpose of reservation in services as per orders contained in Department of Personnel and Training Office Memorandum No.36012/22/93- Estt. (SCT), dated 8.9.1993 which is modified vide DOP&T OM No. 36022/2/2004-Estt(Res) dated 09.03.2004, OM No. 36022/2/2004-Estt(Res) dated 14.10.2008 and OM No. 36033/1/2013-Estt(Res) dated 27/05/2013 or as amended from time to time. It is also declared that I do not belong to persons/sections (Creamy Layer) mentioned in Column 3 of the Schedule to the above referred Memorandums of the Government of India.

Place: _____

Signature of the applicant (OBC) candidate

Date: _____

Government of
(Name & Address of the authority issuing the certificate)

INCOME & ASSETS CERTIFICATE TO BE PRODUCED BY ECONOMICALLY WEAKER SECTIONS

Certificate No. _____

Date: _____

VALID FOR THE YEAR 2023-24

This is to certify that Shri/Smt./Kumari _____
son/daughter/wife of _____ permanent resident of
_____ Village/Street _____ Post.
Office _____ District _____ in the State/Union
Territory _____ Pin Code _____ whose photograph is attested
below belongs to Economically Weaker Sections, since the gross annual income* of his/her
“family” ** is below Rs. 8 lakh (Rupees Eight Lakh only) for the financial year _____
His/her family does not own or possess any of the following assets***:

- i) 5 acres of agricultural land and above;
- ii) Residential flat of 1000 sq. ft. and above;
- iii) Residential plot of 100 sq. yards and above in notified municipalities ;
- iv) Residential plot of 200 sq. yards and above in areas other than the notified municipalities.

2. Shri/Smt./Kumari _____ belongs to the _____ caste
which is not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes
(Central List)

Signature with seal of Office _____
Name _____
Designation _____

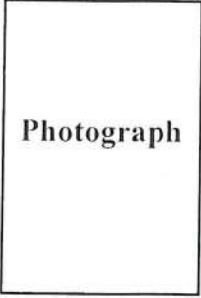
Recent Passport
Size attested
photograph of
the applicant

*Note 1: Income covered all sources i.e. salary, agriculture, business, profession, etc.

**Note 2: The term “Family” for this purpose include the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of 18 years

***Note 3: The property held by a “Family” in different location or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.

Office of the Sarpanch/Numberdar/Naib Tehsildar



Photograph

**IDENTITY CERTIFICATE FOR WEST PAKISTANI REFUGEE RESIDING IN THE
STATE OF JAMMU & KASHMIR**

This is to certify that Shri/Ms/Smt..... S/o,
D/o, W/o Shri.....formerly a resident of Village.....
Tehsil....., Distt.....of undivided India (now Pakistan) presently
residing at H. No....., Street/ Lane No.....
Mohalla.....Village....., Tehsil.....,
District..... is a West Pakistani Refugee after having migrated from
Pakistan during the Indo-Pak Conflict of 1947.

Sarpanch / Numberdar/Naib Tehsildar

RECRUITMENT FOR THE POST OF ASSISTANT COMMANDANT
(TELECOMMUNICATION) IN INDO-TIBETAN BORDER POLICE FORCE

(Applicable for candidates who are already in Government Service only)

No Objection Certificate

Note: Candidates already in Govt. service must submit their application through proper channel with the following certificate duly signed by their employer agreeing to release them, in case finally selected for the post of **Assistant Commandant (Telecommunication)** in Indo-Tibetan Border Police Force.

- (i) Certified that Mr. _____ holds a permanent/temporary post of _____ under Central Government.
- (ii) Certified also that he has submitted his application to this department/Office on _____.
- (iii) Certified also that Mr. _____ will be released in case of his selection for the post of in Indo-Tibetan Border Police Force.
- (iv) Certified also that Sh..... Post..... Serving insince.....(mention dated of appointment) and no DE/Vigilance case is either pending or being contemplated against him.

Place:-

Dated:-

**Signature of Head of Office/
Appointing Authority
with office seal**

**RECRUITMENT FOR THE POST OF ASSISTANT COMMANDANT
(TELECOMMUNICATION) IN ITBP**

(Applicable for in-service candidates only)

DE/VIGILANCE CLEARANCE CERTIFICATE

It is certified that Sh..... Post..... serving in
.....since..... (mention date of appointment) and no DE/Vigilance
case is either pending or being contemplated against him.

Place:-

Dated:-

**Signature of Head of Office/
Appointing Authority
with office seal**

FOR OFFICIAL USE ONLY

Subject: Review Medical Examination of candidates found to be UNFIT in Medical Examination Test for the post of Assistant Commandant (Telecommunication) in ITBPF

Mr/Ms..... Roll No.....is hereby informed that he/she has been medically examined for recruitment to the post of Assistant Commandant(Telecommunication) in ITB Police Force on..... atand found UNFIT due to the reasons mentioned below:-

- (i)
- (ii)
- (iii)
- (iv)

2. You are hereby informed that you can apply for Review Medical Examination (RME) by signing on the consent form below. RME will be conducted onfor which you are required to report athours.

Signature of Medical Officers

Date

Name

Centre Stamp

Counter-signature of the Presiding Officer with Seal

Result of Medical Examination received

Name & Signature of the Candidate

To

The Presiding Officer of Recruitment Board

.....

.....

Subject: APPLICATION FOR REVIEW MEDICAL EXAMINATION.

Sir,

I hereby convey my consent for undergoing Review Medical Examination.

Signature.....

Place.....

Name

Date.....

Roll No.....

(.....)

Signature of the Presiding Officer with Seal)

PAPER-II (OBJECTIVE TYPE)

Subject			
<u>Electronics & Telecommunication Engineering</u> 1. Basic Electronics Engineering: Basic 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 & Kirchhoff's laws, mesh and nodal analysis, circuit theorems; Electromagnetism, 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, structure, properties and uses; Magnetic materials, basics, classification, ferrites, ferro/para-magnetic materials and components; Nano materials-basics, preparation, purification, sintering, nano particles and uses; Nano-optical/magnetic/electronic materials and uses; Superconductivity, uses. 4. Electronic Measurements and Instrumentation: Principles of measurement, accuracy, precision and standards; Analog and Digital systems for measurement, measuring instruments for different applications; Static/dynamic characteristics of measurement systems, errors,			

statistical analysis and curve fitting; Measurement systems for non-electrical quantities; Basics of telemetry; Different types of transducers and displays; Data acquisition system basics. 5. Network Theory: Network graphs & matrices; Wye-Delta transformation; Linear constant coefficient differential equations-time domain analysis of RLC circuits; 2-port network parameters-driving point & transfer functions; State equations for networks; Steady state sinusoidal analysis. 6. Analog and Digital Circuits & Communication Systems: 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. 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. 7. Control Systems: Classification of signals and systems; Application of signal and system theory; System realization; Transforms & their applications; Signal flow graph, 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.			
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8. Computer Fundamentals, Organization and Architecture: Basic architecture, CPU, I/O organization, 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. 9. Electro Magnetics: Elements of vector calculus, Maxwell's equations-basic concepts; Gauss', strokes' theorems; Wave propagation thorough 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. 10. 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. 11. 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			
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Electrical Engineering

12. 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.

13. 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.

14. Electrical and Electronic Measurements:

Principles of measurement, accuracy, precision and standards; Bridges and potentiometers: moving coil, moving iron, dynamometer and induction types 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

15. 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.

16. 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.			
17. Power System: 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, Wing 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.			
18. 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.			