बिहार स्टेट पावर (होल्डिंग) कंपनी लिमिटेड
Bihar State Power (Holding) Company Limited
बिहार सरकार का उपक्रम (A Govt. of Bihar Undertaking)
सामान्य प्रशासन विभाग (Department of General Administration)
GST No. 10AAFCB2394A2ZD, CIN No. U40102BR012SGC018495

Employment Notice No.- 03/2022 (Internal)

This Employment Notice is only for the workmen,
who are working in regular establishment in
Bihar State Power (Holding) Company Limited & its four Subsidiary Companies
(NBPDCL, SBPDCL, BSPTCL & BSPGCL)

The candidates, who have already submitted online application form for the respective posts as per their eligibility against Employment Notice No.-01/2022 (Internal), **they need only to validate their online application form using USER ID and Password.** They need not to pay again.

Bihar State Power (Holding) Company Ltd. (BSPHCL) invites **On-line Application** for itself and its subsidiary companies namely North Bihar Power Distribution Company Limited (NBPDCL), South Bihar Power Distribution Company Ltd. (SBPDCL), Bihar State Power Transmission Company Ltd. (BSPTCL) & Bihar State Power Generation Company Limited (BSPGCL) from the eligible *employees who have been working on regular establishment for minimum 3 (three) years in BSPHCL & its four Subsidiary Companies (NBPDCL, SBPDCL, BSPTCL & BSPGCL)* for appointment on the posts as mentioned below against the vacant posts along with backlog/carry forwarded post : -

Sl. No.	Post	Pay Scale (as per 7th PRC)	Category-wise Vacancy													Total
			UR		EWS		SC		ST		EBC		BC		BC (F)	
			G	W	G	W	G	W	G	W	G	W	G	W		
1	Assistant Electrical Engineer (General)	Level - 9	2	2	1	0	1	1	0	0	1	1	1	0	0	10
2	Assistant Executive Engineer (GTO)	Level - 9	1	2	1	0	1	0	0	0	1	1	1	0	0	8
3	Assistant Engineer (Civil)	Level - 9	1	0	0	0	0	0	0	0	1	0	0	0	0	2
4	Accounts Officer	Level - 9	2	2	1	0	1	1	0	0	1	1	1	0	0	10
5	Revenue Officer	Level - 9	1	0	0	0	0	0	0	0	1	0	0	0	0	2
6	Assistant IT Manager	Level - 8	6	4	2	1	2	2	1	0	3	2	2	1	1	27
7	Junior Electrical Engineer (General)	Level - 8	2	1	0	0	5	3	1	0	7	3	5	2	2	31
8	Junior Electrical Engineer (GTO)	Level - 8	2	1	0	0	2	1	0	0	2	1	1	1	0	11
9	Junior Engineer (Civil)	Level - 8	4	3	1	0	2	1	0	0	2	1	1	1	0	16
10	Legal Supervisor	Level – 7	2	1	0	0	1	0	0	0	1	0	1	0	0	6
11	Assistant	Level - 6	1	1	0	0	1	0	0	0	1	1	0	0	0	5
12	Correspondence Clerk	Level – 5	0	0	0	0	5	3	1	0	3	1	0	0	1	14
13	Store Assistant	Level – 5	2	1	0	0	3	2	0	0	4	2	0	0	1	15
14	Junior Accounts Clerk	Level – 5	5	4	2	0	3	3	1	0	3	2	3	1	1	28

- UR stands for Unreserved, EWS stands Economically Weaker Section, SC stands for Scheduled Caste, ST stands for Scheduled Tribes, EBC stands for Extremely Backward Class, BC Stands for Backward Class, "G" stands for General "W" stands for Women, VH stands – Visually handicapped.
- The above category wise vacancy is based on present vacancy/requirement against the total sanctioned posts including backlog vacancy calculated against the previous recruitment.

This Employment Notice is only for the workmen, who are working in regular establishment in BSPHCL& its four subsidiary companies.

Note :-

(i) The post for Divyang (Physically Challenged) Candidates will be reserved as per Govt. of Bihar rules.

(ii) The reservation for Women will be as per Govt. of Bihar rules.

(iii) The reservation for Grand Son / Grand Daughter/Maternal Grand Son / Maternal Grand Daughter of freedom fighter of Bihar will be complied as per Govt. of Bihar rules.

(iv) The reservation for economically weaker section will be as per Govt. of Bihar rules.

(v) Category of Female (BC) includes women candidate of SC, ST, EBC and BC category. To claim reservation under this category the candidate must be domicile of Bihar.

(vi) The number of posts are subject to change as per requirement of the companies.

1) QUALIFICATION & ELIGIBILITY :

Sl. No.	Name of the post	Requisite Qualification	Employee of BSPHCL who may apply
1	Assistant Electrical Engineer (General)	Full time 4 years Engineering Degree BE/ B.Tech/ B.Sc. (Engg.) in Electrical/ Electrical & Electronics from a recognized University/ Institute approved by AICTE with minimum % of marks as mentioned below- UR - 60%, SC/ST – 50%, BC/EBC – 55%	The workmen of the company of Class – III & IV (other than JE)
2	Assistant Executive Engineer (GTO)	Full time 4 years Engineering Degree BE/ B.Tech/ B.Sc. (Engg.) in Electrical/ Electrical & Electronics/ Electronics/ Mechanical from a recognized University/ Institute approved by AICTE with minimum % of marks as mentioned below- UR - 60%, SC/ST – 50%, BC/EBC – 55%	The workmen of the company of Class – III & IV (other than JE)
3	Assistant Engineer (Civil)	Full time 4 years' B.E./ B.Tech./ B.Sc. (Engineering) Degree in Civil Engineering/ Construction Engineering from a recognized University/ Institute approved by AICTE with minimum % of marks as mentioned below :- UR - 60%, SC/ST – 50%, BC/EBC – 55%	The workmen of the company of Class – III & IV (other than JE(C))
4	Accounts Officer	Charted Accountant (CA) passed final examination from Institute of Chartered Accountants of India/ CMA/ICWA passed final examination from Institute of Cost Accountants of India.	Class – III & IV (Workmen)
5	Revenue Officer	2 years' Full time MBA/ PGDM with four year B.E./ B.Tech./ B.Sc. (Engineering) Degree in Electrical/ Electronics/ Power Engineering with minimum marks obtained as 60% for UR, 50% for SC/ST and 55% for BC/EBC .	Class – III & IV (Workmen)
6	Assistant IT Manager	MCA from any Govt. recognized Institution/ University Or Full time B.E./ B.Tech. (Computer Science/ IT) from any Govt. recognized Institution/ University approved by AICTE	Class – III & IV (Workmen)
7	Junior Electrical Engineer (General)	**Full time 3 years / Part Time Diploma** in Electrical from a recognized Institute/ College duly recognized by State Govt./ Central Govt. approved by AICTE	Class – III & IV (Workmen)
8	Junior Electrical Engineer (GTO)	**Full time 3 years / Part Time Diploma** in Electrical / Electronics/Mechanical Engineering from a recognized Institute/ College duly recognized by State Govt./ Central Govt. approved by AICTE	Class – III & IV (Workmen)
9	Junior Engineer (Civil)	**Full time 3 years / Part Time Diploma** in Civil from a recognized Institute/ College duly recognized by State Govt./ Central Govt. approved by AICTE.	Class – III & IV (Workmen)
10	Legal Supervisor	5 Yrs. BALLB/ BBALLB or 3 yrs. LLB from any UGC/Govt. University/ Institute	below the Pay Level 7* (as per 7th PRC)
11	Assistant	Graduate in any discipline from any recognized University	below the Pay Level 6* (as per 7th PRC)
12	Correspondence Clerk	Graduate in any discipline from any recognized University	below the Pay Level 5* (as per 7th PRC)

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Sl. No.	Name of the post	Requisite Qualification	Employee of BSPHCL who may apply
13	Store Assistant	Graduate in any discipline from any recognized University	below the Pay Level 5* (as per 7th PRC)
14	Junior Accounts Clerk	Graduate in commerce from any recognized University	below the Pay Level 5* (as per 7th PRC)

* As per revised pay matrix, issued vide BSPHCL Resolution No.- 04 dt. 02.02.2022.

NOTE :- 1) Appearing candidates may also apply for the respective posts but in such case, the shortlisted candidate shall have to produce the final year marks sheet / Degree certificate at the time of counseling/ documents verification. If the fail to submit final year marks sheet / Degree certificate at the time of counseling/ documents verification, their candidature will summarily be cancelled.

2) Candidate having degree from Hindi Vidyapith is not eligible to fill up the application form.

2) **MINIMUM SERVICE LENGTH (as on last date of application form i.e. 18.04.2022)** : -
The workmen of BSPHCL or its subsidiary companies must assure before filling online application that they have been working on regular establishment for minimum 3 (three) years (including probation period) in BSPHCL & its four Subsidiary Companies (NBPDCL, SBPDCL, BSPTCL & BSPGCL).

3) **PROBATION PERIOD :**
The recruited candidates will remain on probation as per the rules for respective posts.
If during probation period, the performance is not found satisfactory, the services will be reverted to their original post.

4) **RESERVATION :**
   a) Reservation will be given in terms of reservation rules and policies as per Govt. of Bihar.
   b) The benefit of reservation is given only to the permanent domiciles of Bihar. The Candidate who claims for BC/ EBC reservation benefit will have to submit the Caste & Non Creamy Layer Certificate issued by the Competent Authority of his/ her home district in the prescribed Performa of Govt. of Bihar issued before not more than a year. The Candidates belonging to SC/ST are required to submit only caste certificate issued by the competent authority of his/her home district.
   c) The candidate, who claims for reservation against relatives of Freedom Fighter as per Govt. of Bihar Resolution, will have to submit the Certificate issued by the Competent Authority in the prescribed Performa of Govt. of Bihar.
   d) The candidate, who claims reservation for Economically weaker section, will have to submit the Certificate issued by the Competent Authority in the prescribed Performa of Govt. of Bihar.
   e) If a Candidate does not produce valid certificate of Caste & Creamy Layer, Freedom Fighter, Divyang, Land looser/ Land displaced persons or domicile etc., (as applicable), in original at the time of document's verification, his/ her claim for such reservation benefit will be forfeited and his/ her Candidature will be considered under UR category/ general candidate.

5) **AGE (31.12.2021) :-**

Age	UR (General)	SC	ST	EBC	BC	Female (UR)
Minimum	21	21	21	21	21	21
Maximum	50	50	50	50	50	50

6) **APPLICATION FEE :**
   a) For UR, BC, EBC candidates - ₹ 1,000/- (₹ One thousand)
   b) For SC/ ST/Female of Bihar domicile & Divyang candidates - ₹ 250/- (₹ Two hundred fifty)
   c) Fee will be accepted through online payment mode only.

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7) **MODE OF SELECTION :**

a) Candidates will be shortlisted on the basis of marks obtained in COMPUTER BASED TEST (CBT). Syllabus of all the posts as mentioned in coloum no.-1 is hereby attached.

b) The minimum qualifying marks for the test will be 40% for UR, 36.5% for BC, 34% for EBC & 32% for SC/ST/ Female/ PHP (Divyang) candidates.

c) There will not be CLT, the question related to computers will be asked in CBT.

d) **A merit list will be prepared in following manner** :-

e) A combined merit list for the post of (i) Assistant (ii) Correspondence Clerk and (3) Store Assistant will be prepared and allotment of different post to the selected candidates will be in order of merit cum preference basis.

f) A combined merit list for the post of (i) Assistant Electrical Engineer (General) and (ii) Assistant Executive Engineer (GTO) will be prepared and allotment of post to the selected candidates will be in order of merit cum preference basis followed by qualification/ eligibility.

g) A combined merit list for the post of (i) Junior Electrical Engineer (General) and (ii) Junior Electrical Engineer (GTO) will be prepared and allotment of post to the selected candidates will be in order of merit cum preference basis followed by qualification/ eligibility.

h) For rest of the posts, a separate merit list will be prepared.

i) On the basis of merit list, a select list against the advertised post in the ratio of 1:1 will be prepared and selected candidates will be called for counseling/ documents/ certificate verification/Joining (as required)

8) **IMPORTANT DATES :**

a.	Online Registration starting date	08.04.2022
b.	Closing date for online submission of application	18.04.2022
c.	Last date of payment through Net Banking/ Debit Card/ Credit Card etc.	18.04.2022
d.	Period for Modification/ edit in application form, if required by the candidate	21.04.2022
e.	Tentative Date of Exam (CBT)	12.05.2022

Candidates are advised to regularly keep in touch with the authorized BSPHCL website www.bsphcl.co.in for details and updates. Candidate will be informed regarding the date of examination by email and SMS also. Admit Card can be downloaded from the BSPHCL official website. Admit card will be computer generated only and will not be sent by post.

9) **HOW TO APPLY :-**

1	For the candidates who have already submitted online application form against Employment Notice No. – 01/2022 (Internal)	• Such candidates who have already submitted online application form for the respective posts as per their eligibility against Employment Notice No.-01/2022 (Internal), they need only to validate their online application form using USER ID and Password. • When the such candidate will login using USER ID and Password, all the information/ data provided by the candidates at the time of submission of online application form against ENN-01/2022 (Internal), will come automatically, candidates are advised to validate with some of the required information only. • They need not to pay again.
2	for New Candidates	The applicants are to apply through "ON LINE" on the Website of www.bsphcl.co.in. The Website will open from 08.04.2022.

After filling up/ validating the ON-LINE application; Candidates must take a print out of the Application Form for future reference and downloading of Admit Cards etc.

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10) IMPORTANT INSTRUCTION BEFORE FILLING ON-LINE APPLICATIONS: -

a. For the post of AEE (General) and A.Ex.E. (GTO), only one online application form will have to fill by the eligible candidate.

b. For the post of JEE (General) and JEE (GTO), only one online application form will have to fill by the eligible candidates.

c. For the post of (i) Assistant (ii) Correspondence Clerk and (3) Store Assistant, only one online application form will have to fill by the eligible candidates.

d. For rest of the posts i.e. Assistant Engineer (Civil), Accounts Officer, Revenue Officer, Assistant IT Manager, Junior Engineer (Civil), Legal Supervisor and Junior Accounts Clerk will have to fill separate online application form.

e. Please note that eligibility criteria specified herein are the basic criteria for applying for the post.

f. **After submission of online application form, if any modification is required in the online application form such as correction in Name/Category/Date of Birth/Father's Name etc, the candidate may modify/ edit their application form within the stipulated time frame. After the due date, no change/ modification will be permitted at any stage of the recruitment. NO claim will be entertained in this regard.**

g. **At any stage of recruitment, If it is found that the caste/ category/ domicile/ is incorrect, their claim for such reservation benefit will be forfeited and candidature will be considered under UR category/ general candidate.**

h. E-mail ID and Mobile Number furnished must remain valid for at least 12 months from the date of application. Under no circumstances, he/she should share/mention registration no. to any other person. In case, a candidate does not have a valid personal email ID, he/she should create his/her new Email ID before applying online as all the correspondence will be made from the official email ID of the BSPHCL to the personal mail ID of the candidates only.

i. Candidate must possess the prescribed minimum qualification conditions / criteria required for the respective posts at the time of submission of online application.

j. Before applying online a candidate will be required to have a scanned (digital) image in JPG/JPEG format, of his recent Pass-Port Size Photograph (less than 500 KB) and Signature (less than 200 KB) as per the specifications given on the website. Candidates should first scan their photograph and signature and ensure that both the photograph and signature are saved on the PC/Laptop/Other Media.

k. The Online Application involves the following process:-
   1. **Registration (including service history) / Login,**
   2. **Personal, Service and Educational Details including preference of post for selection**
   3. **Uploading of Photograph and Signature,**
   4. **Payment & Final Submission,**
   5. **Generation & Printing of Registration Slip.**

l. There is a prescribed fee for Online Application Form. Candidates will be directed for online payment once the form is completely filled. Candidate is requested to keep his/her Credit Card/ Debit card/ Net Banking details ready for the same. Candidates are required to carefully go through the Instructions for filling online application. Candidates while using the Internet Payment Gateway services are required to pay **Service Charges Extra**, in addition to the prescribed application fees.

m. **If the candidate faces any difficulty while submitting the online application, he/she can get in touch with the company on official mobile no. – 9262296789 from 10:30 AM to 5:00 PM or may use "Request information form" provided on online application form link.**

n. The Candidates will be liable for severe legal action if any false information with respect to name, father's name date of birth, address, educational qualification, percentage of marks, caste certificate, photographs etc. is furnished by him/ her.

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o. The BSPHCL reserves the right to cancel the selection process at any stage and increase or decrease the no. of vacancy of any posts to be filled according to the exigencies of the Companies.

p. **Selected candidates will be called for document verification/ counseling/Joining.**

q. Candidates are advised to possess a valid e-mail ID and Mobile Number which is to be entered in the on-line Application form. The e-mail address specified in the application should be valid/ functional for at least 12 months from the date of the submission of application.

r. Canvassing in any form shall debar the candidate from selection.

s. In case of Name/Surname changed, a copy of Gazette of that effect should be submitted as and when required.

t. No TA/ DA will be paid to the Candidate, if called for CBT / documents verification etc.

u. Mere submission of application does not guarantee the candidature for consideration in selection process.

v. Provisional Admit Card will be issued only on the basis of information furnished by the applicant.

w. **The selected candidates shall have to produce relieving letter from the present employer at the time of joining his duty on the selected post.**

x. Print a copy of finally submitted application form for future reference.

y. No refund of application fee once deposited shall be made.

z. **The BSPHCL will not be responsible for false payment/ unsuccessful payment/ Transaction status failure or any type of problems/ difficulty facing in regard to internet connection.**

11) The candidates outside from BSPHCL or its Subsidiary Company (NBPDCL/ SBPDCL/ BSPGCL & BSPTCL) are not eligible to apply for the respective posts. If a candidate outside from above company fills up the form, the form will be summarily rejected. No correspondence will be done in this regard and the fee paid will not be refunded.

12) The BSPHCL will not be responsible for any printing mistakes.

13) The previous Employment Notice No.-01/2022 (Internal) and concerning notice dt. 23.02.2022 is hereby cancelled.

(Bipin Kumar Singh)
GM (HR & Adm.)

Memo No. _____118_____ Patna   Date 07/4/2022

Copy forwarded to T.A. /PPS/ OSD to CMD/PPS to Director (Adm), BSPHCL/ OSD to MD, BSPGCL/OSD to M.D., BSPTCL/OSD to M.D., NBPDCL/OSD to M.D.,SBPDCL for information.

(Bipin Kumar Singh)
GM (HR & Adm.)

Memo No. _____118-_____/ Patna   Date 07/4/2022

Copy forwarded to All GM (HR & Adm.)/All GM (Revenue)/ All GM-cum-CE/ All Chief Engineers/ All DGM (HR & Adm.)/ All DGM (F&A)/ All DGM (Revenue)/All OSD (HR & Adm.)/ All DGM-cum ESE/All ESE /All EEE/ All AEE/All DGM (IT)/ DGM (Metering)/ DGM (PR)/ DGM (Personnel)/ CS/All Sr. Manager (Finance & Accounts)/All Sr. Manager (Personnel)/All U.S./All Ad.O./All A.O. (Establishment) BSPHCL/ BSPTCL/ BSPGCL/ NBPDCL/ SBPDCL. for information and necessary action.

2. It is requested to circulate widely this notice under your jurisdiction.

3. All DGM (IT) are requested to upload the above order on their companies website.

(Bipin Kumar Singh)
GM (HR & Adm.)

Syllabus for the post of Assistant Electrical Engineer (General)

1. General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Polity
- Science & Technology

2. Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

3. General English & Comprehension (Xth Level)-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

4. General Hindi (Xth Level) :
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

5. Basic knowledge of Computer
- Fundamental of computers
  - CPU
  - Memory
  - Hard Disk
  - Input/ Output Devices
  - knowledge of Number System
- Basic concept of Computer (Hardware & Software)
  - Computer Software
  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point
- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers
- Basic knowledge of computer network
  - LAN
  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall

6. Technical paper (Electrical/ Electrical & Electronics) –

1) Engineering Mathematics
Linear Algebra: Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series, Vector identities, Directional derivatives, Line integral, Surface integral, Volume integral, Stokes's theorem, Gauss's theorem, Green's theorem.

Differential equations: First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's equation, Euler's equation, Initial and boundary value problems, Partial Differential Equations, Method of separation of variables.

Complex variables: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals.

Probability and Statistics: Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis.

Numerical Methods: Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations.

Transform Theory: Fourier Transform, Laplace Transform, z-Transform.

Electrical Engineering

2) Electric Circuits
Network graph, KCL, KVL, Node and Mesh analysis, Transient response of dc and ac networks, Sinusoidal steady-state analysis, Resonance, Passive filters, Ideal current and voltage sources, Thevenin's theorem, Norton's theorem, Superposition theorem, Maximum power transfer theorem, Two-port networks, Three phase circuits, Power and power factor in ac circuits.

3) Electromagnetic Fields
Coulomb's Law, Electric Field Intensity, Electric Flux Density, Gauss's Law, Divergence, Electric field and potential due to point, line, plane and spherical charge distributions, Effect of dielectric medium, Capacitance of simple configurations, Biot-Savart's law, Ampere's law, Curl, Faraday's law, Lorentz force, Inductance, Magnetomotive force, Reluctance, Magnetic circuits, Self and Mutual inductance of simple configurations.

4) Signals and Systems
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, Applications of Fourier Transform, Laplace Transform and z-Transform.

5) Electrical Machines
Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, parallel operation; Auto-transformer, Electromechanical energy conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, starting and speed control of dc motors; Three phase induction motors: principle of operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control; Operating principle of single phase induction motors; Synchronous machines: cylindrical and salient pole machines, performance, regulation and parallel operation of generators, starting of synchronous motor, characteristics; Types of losses and efficiency calculations of electric machines.

6) Power Systems
Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, GaussSeidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over-current, differential and distance protection; Circuit breakers, System stability concepts, Equal area criterion.

7) Control Systems
Mathematical modeling and representation of systems, Feedback principle, transfer function, Block diagrams and Signal flow graphs, Transient and Steady-state analysis of linear time invariant systems, Routh-Hurwitz and Nyquist criteria, Bode plots, Root loci, Stability analysis, Lag, Lead and Lead-Lag compensators; P, PI and PID controllers; State space model, State transition matrix.

8) Electrical and Electronic Measurements
Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis.

9) Analog and Digital Electronics
Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response; Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers, Combinational and Sequential logic circuits, Multiplexer, Demultiplexer, Schmitt trigger, Sample and hold circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and Interfacing.

10) Power Electronics
Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation

Syllabus for the post of Assistant Ex. Engineer (GTO)

1. General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Polity
- Science & Technology

2. Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

3. General English & Comprehension (Xth Level)-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

4. General Hindi (Xth Level) :
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

5. Basic knowledge of Computer
- Fundamental of computers
  - CPU
  - Memory
  - Hard Disk
  - Input/ Output Devices
  - knowledge of Number System
- Basic concept of Computer (Hardware & Software)
  - Computer Software
  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point
- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers
- Basic knowledge of computer network
  - LAN
  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall

6. Technical paper (For those who have degree in Electrical/ Electrical & Electronics) –

1) Engineering Mathematics

Linear Algebra: Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series, Vector identities, Directional derivatives, Line integral, Surface integral, Volume integral, Stokes's theorem, Gauss's theorem, Green's theorem.

Differential equations: First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's equation, Euler's equation, Initial and boundary value problems, Partial Differential Equations, Method of separation of variables.

Complex variables: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals.

Probability and Statistics: Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis.

Numerical Methods: Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations.

Transform Theory: Fourier Transform, Laplace Transform, z-Transform.

Electrical Engineering

2) Electric Circuits
Network graph, KCL, KVL, Node and Mesh analysis, Transient response of dc and ac networks, Sinusoidal steady-state analysis, Resonance, Passive filters, Ideal current and voltage sources, Thevenin's theorem, Norton's theorem, Superposition theorem, Maximum power transfer theorem, Two-port networks, Three phase circuits, Power and power factor in AC circuits.

3) Electromagnetic Fields
Coulomb's Law, Electric Field Intensity, Electric Flux Density, Gauss's Law, Divergence, Electric field and potential due to point, line, plane and spherical charge distributions, Effect of dielectric medium, Capacitance of simple configurations, Biot-Savart's law, Ampere's law, Curl, Faraday's law, Lorentz force, Inductance, Magnetomotive force, Reluctance, Magnetic circuits,Self and Mutual inductance of simple configurations.

4) Signals and Systems
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, Applications of Fourier Transform, Laplace Transform and z-Transform.

1) Electrical Machines
Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, parallel operation; Auto-transformer, Electromechanical energy conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, starting and speed control of dc motors; Three phase induction motors: principle of operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control; Operating principle of single phase induction motors; Synchronous machines: cylindrical and salient pole machines, performance, regulation and parallel operation of generators, starting of synchronous motor, characteristics; Types of losses and efficiency calculations of electric machines.

2) Power Systems
Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, GaussSeidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over-current, differential and distance protection; Circuit breakers, System stability concepts, Equal area criterion.

3) Control Systems
Mathematical modeling and representation of systems, Feedback principle, transfer function, Block diagrams and Signal flow graphs, Transient and Steady-state analysis of linear time invariant systems, Routh-Hurwitz and Nyquist criteria, Bode plots, Root loci, Stability analysis, Lag, Lead and Lead-Lag compensators; P, PI and PID controllers; State space model, State transition matrix.

4) Electrical and Electronic Measurements
Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis.

5) Analog and Digital Electronics
Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response; Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers, Combinational and Sequential logic circuits, Multiplexer, Demultiplexer, Schmitt trigger, Sample and hold circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and Interfacing.

6) Power Electronics
Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation

Section 1: Engineering Mathematics

Linear Algebra: Vector space, basis, linear dependence and independence, matrix algebra, eigenvalues and eigenvectors, rank, solution of linear equations- existence and uniqueness.

Calculus: Mean value theorems, theorems of integral calculus, evaluation of definite and improper integrals, partial derivatives, maxima and minima, multiple integrals, line, surface and volume integrals, Taylor series.

Differential Equations: First order equations (linear and nonlinear), higher order linear differential equations, Cauchy's and Euler's equations, methods of solution using variation of parameters, complementary function and particular integral, partial differential equations, variable separable method, initial and boundary value problems.

Vector Analysis: Vectors in plane and space, vector operations, gradient, divergence and curl, Gauss's, Green's and Stokes' theorems.

Complex Analysis: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, sequences, series, convergence tests, Taylor and Laurent series, residue theorem.

Probability and Statistics: Mean, median, mode, standard deviation, combinatorial probability, probability distributions, binomial distribution, Poisson distribution, exponential distribution, normal distribution, joint and conditional probability.

Section 2: Networks, Signals and Systems

Circuit analysis: Node and mesh analysis, superposition, Thevenin's theorem, Norton's theorem, reciprocity. Sinusoidal steady state analysis: phasors, complex power, maximum power transfer. Time and frequency domain analysis of linear circuits: RL, RC and RLC circuits, solution of network equations using Laplace transform.

Linear 2-port network parameters, wye-delta transformation.

Continuous-time signals: Fourier series and Fourier transform, sampling theorem and applications.

Discrete-time signals: DTFT, DFT, z-transform, discrete-time processing of continuous-time signals. LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeroes, frequency response, group delay, phase delay.

Section 3: Electronic Devices

Energy bands in intrinsic and extrinsic semiconductors, equilibrium carrier concentration, direct and indirect band-gap semiconductors.

Carrier transport: diffusion current, drift current, mobility and resistivity, generation and recombination of carriers, Poisson and continuity equations.

P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell.

Section 4: Analog Circuits

Diode circuits: clipping, clamping and rectifiers.

BJT and MOSFET amplifiers: biasing, ac coupling, small signal analysis, frequency response. Current mirrors and differential amplifiers.

Op-amp circuits: Amplifiers, summers, differentiators, integrators, active filters, Schmitt triggers and oscillators.

Section 5: Digital Circuits

Number representations: binary, integer and floating-point- numbers. Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates and their static CMOS implementations, arithmetic circuits, code converters, multiplexers, decoders.

Sequential circuits: latches and flip-flops, counters, shift-registers, finite state machines, propagation delay, setup and hold time, critical path delay.

Data converters: sample and hold circuits, ADCs and DACs.

Semiconductor memories: ROM, SRAM, DRAM. Computer organization: Machine instructions and addressing modes, ALU, data-path and control unit, instruction pipelining.

Section 6: Control Systems

Basic control system components; Feedback principle; Transfer function; Block diagram representation; Signal flow graph; Transient and steady-state analysis of LTI systems; Frequency response; Routh-Hurwitz and Nyquist stability criteria; Bode and root-locus plots; Lag, lead and laglead compensation; State variable model and solution of state equation of LTI systems.

Section 7: Electromagnetics

Maxwell's equations: differential and integral forms and their interpretation, boundary conditions, wave equation, Poynting

vector.

Plane waves and properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth.

Transmission lines: equations, characteristic impedance, impedance matching, impedance transformation, S-parameters, Smith chart.

Rectangular and circular waveguides, light propagation in optical fibers, dipole and monopole antennas, linear antenna arrays.

<mark>Technical paper (For those who have degree in Mechanical)</mark> –

Section 1: Engineering Mathematics

Linear Algebra: Matrix algebra, systems of linear equations, eigenvalues and eigenvectors. Calculus: Functions of single variable, limit, continuity and differentiability, mean value theorems, indeterminate forms; evaluation of definite and improper integrals; double and triple integrals; partial derivatives, total derivative, Taylor series (in one and two variables), maxima and minima, Fourier series; gradient, divergence and curl, vector identities, directional derivatives, line, surface and volume integrals, applications of Gauss, Stokes and Green's theorems.
Differential equations: First order equations (linear and nonlinear); higher order linear differential equations with constant coefficients; Euler-Cauchy equation; initial and boundary value problems; Laplace transforms; solutions of heat, wave and Laplace's equations.

Complex variables: Analytic functions; Cauchy-Riemann equations; Cauchy's integral theorem and integral formula; Taylor and Laurent series.

Probability and Statistics: Definitions of probability, sampling theorems, conditional probability; mean, median, mode and standard deviation; random variables, binomial, Poisson and normal distributions.

Numerical Methods: Numerical solutions of linear and non-linear algebraic equations; integration by trapezoidal and Simpson's rules; single and multi-step methods for differential equations.

Section 2: Applied Mechanics and Design

Engineering Mechanics: Free-body diagrams and equilibrium; friction and its applications including rolling friction, belt-pulley, brakes, clutches, screw jack, wedge, vehicles, etc.; trusses and frames; virtual work; kinematics and dynamics of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations; Lagrange's equation.

Mechanics of Materials: Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; concept of shear centre; deflection of beams; torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.

Theory of Machines: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.

Vibrations: Free and forced vibration of single degree of freedom systems, effect of damping; vibration isolation; resonance; critical speeds of shafts.

Machine Design: Design for static and dynamic loading; failure theories; fatigue strength and the SN diagram; principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs.

Section 3: Fluid Mechanics and Thermal Sciences

Fluid Mechanics: Fluid properties; fluid statics, forces on submerged bodies, stability of floating bodies; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; dimensional analysis; viscous flow of incompressible fluids, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes, bends and fittings; basics of compressible fluid flow.

Heat-Transfer: Modes of heat transfer; one dimensional heat conduction, resistance concept and electrical analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system, Heisler's charts; thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, effect of turbulence; heat exchanger performance, LMTD and NTU methods; radiative heat transfer, StefanBoltzmann law, Wien's displacement law, black and grey surfaces, view factors, radiation network analysis

Thermodynamics: Thermodynamic systems and processes; properties of pure substances, behavior of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.

Applications: Power Engineering: Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. I.C. Engines: Air-standard Otto, Diesel and dual cycles. Refrigeration and air-conditioning: Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes. Turbomachinery: Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines; steam

and gas turbines.

Section 4: Materials, Manufacturing and Industrial Engineering

Engineering Materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials.

Casting, Forming and Joining Processes: Different types of castings, design of patterns, moulds and cores; solidification and cooling; riser and gating design. Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding.

Machining and Machine Tool Operations: Mechanics of machining; basic machine tools; single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, jigs and fixtures; abrasive machining processes; NC/CNC machines and CNC programming.

Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly; concepts of coordinate-measuring machine (CMM).

Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools; additive manufacturing.

Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning; lean manufacturing.

Inventory Control: Deterministic models; safety stock inventory control systems.

Operations Research: Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

Syllabus for the post of ASSISTANT ENGINEER (CIVIL)

1. General Knowledge (Xth Level):
- Current Affairs-National & International
- Indian History
- Indian Geography
- Indian Polity
- Science & Technology

2. Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

3. General English & Comprehension (Xth Level)-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

4. General Hindi (Xth Level) :
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

5. Basic knowledge of Computer
- Fundamental of computers
  - CPU
  - Memory
  - Hard Disk
  - Input/ Output Devices
  - knowledge of Number System
- Basic concept of Computer (Hardware & Software)
  - Computer Software
  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point
- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers
- Basic knowledge of computer network
  - LAN
  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall

6. Technical paper (Civil Engineering/ Construction Engineering) –

1) Engineering Mathematics

Linear Algebra: Matrix algebra; Systems of linear equations; Eigen values and Eigen vectors. Calculus: Functions of single variable; Limit, continuity and differentiability; Mean value theorems, local maxima and minima, Taylor and Maclaurin series; Evaluation of definite and indefinite integrals, application of definite integral to obtain area and volume; Partial derivatives; Total derivative; Gradient, Divergence and Curl, Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Ordinary Differential Equation (ODE): First order (linear and non-linear) equations; higher order linear equations with constant coefficients; Euler-Cauchy equations; Laplace transform and its application in solving linear ODEs; initial and boundary value problems. Partial Differential Equation (PDE): Fourier series; separation of variables; solutions of one-dimensional diffusion equation; first and second order one-dimensional wave equation and two-dimensional Laplace equation.

Probability and Statistics: Definitions of probability and sampling theorems; Conditional probability; Discrete Random variables: Poisson and Binomial distributions; Continuous random variables: normal and exponential distributions; Descriptive statistics – Mean, median, mode and standard deviation; Hypothesis testing.

Numerical Methods: Accuracy and precision; error analysis. Numerical solutions of linear and non-linear algebraic equations; Least square approximation, Newton's and Lagrange polynomials, numerical differentiation, Integration by trapezoidal and Simpson's rule, single and multi-step methods for first order differential equations.

2) Structural Engineering

Engineering Mechanics: System of forces, free-body diagrams, equilibrium equations; Internal forces in structures; Friction and its applications; Kinematics of point mass and rigid body; Centre of mass; Euler's equations of motion; Impulse-momentum; Energy methods; Principles of virtual work.

Solid Mechanics: Bending moment and shear force in statically determinate beams; Simple stress and strain relationships; Theories of failures; Simple bending theory, flexural and shear stresses, shear centre; Uniform torsion, buckling of column, combined and direct bending stresses.

Structural Analysis: Statically determinate and indeterminate structures by force/ energy methods; Method of superposition; Analysis of trusses, arches, beams, cables and frames; Displacement methods: Slope deflection and moment distribution methods; Influence lines; Stiffness and flexibility methods of structural analysis.

Construction Materials and Management: Construction Materials: Structural steel – composition, material properties and behaviour; Concrete – constituents, mix design, short-term and long-term properties; Bricks and mortar; Timber; Bitumen. Construction Management: Types of construction projects; Tendering and construction contracts; Rate analysis and standard specifications; Cost estimation; Project planning and network analysis – PERT and CPM.

Concrete Structures: Working stress, Limit state and Ultimate load design concepts; Design of beams, slabs, columns; Bond and development length; Prestressed concrete; Analysis of beam sections at transfer and service loads.

Steel Structures: Working stress and Limit state design concepts; Design of tension and compression members, beams and beam-columns, column bases; Connections – simple and eccentric, beam-column connections, plate girders and trusses; Plastic analysis of beams and frames.

3) Geotechnical Engineering

Soil Mechanics: Origin of soils, soil structure and fabric; Three-phase system and phase relationships, index properties; Unified and Indian standard soil classification system; Permeability – one dimensional flow, Darcy's law; Seepage through soils – two-dimensional flow, flow nets, uplift pressure, piping; Principle of effective stress, capillarity, seepage force and quicksand condition; Compaction in laboratory and field conditions; One- dimensional consolidation, time rate of consolidation; Mohr's circle, stress paths, effective and total shear strength parameters, characteristics of clays and sand.

Foundation Engineering: Sub-surface investigations – scope, drilling bore holes, sampling, plate load test, standard penetration and cone penetration tests; Earth pressure theories – Rankine and Coulomb; Stability of slopes – finite and infinite slopes, method of slices and Bishop's method; Stress distribution in soils – Boussinesq's and Westergaard's theories, pressure bulbs; Shallow foundations – Terzaghi's and Meyerhoff's bearing capacity theories, effect of water table; Combined footing and raft foundation; Contact pressure; Settlement analysis in sands and clays; Deep foundations – types of piles, dynamic and static formulae, load capacity of piles in sands and clays, pile load test, negative skin friction.

4) Water Resources Engineering

Fluid Mechanics: Properties of fluids, fluid statics; Continuity, momentum, energy and corresponding equations; Potential flow, applications of momentum and energy equations; Laminar and turbulent flow; Flow in pipes, pipe networks; Concept of boundary layer and its growth.

Hydraulics: Forces on immersed bodies; Flow measurement in channels and pipes; Dimensional analysis and hydraulic similitude; Kinematics of flow, velocity triangles; Basics of hydraulic machines, specific speed of pumps and turbines; Channel Hydraulics – Energy-depth relationships, specific energy, critical flow, slope profile, hydraulic jump, uniform flow and gradually varied flow

Hydrology: Hydrologic cycle, precipitation, evaporation, evapo-transpiration, watershed, infiltration, unit hydrographs, hydrograph analysis, flood estimation and routing, reservoir capacity, reservoir and channel routing, surface run-off models, ground water hydrology – steady state well hydraulics and aquifers; Application of Darcy's law.

Irrigation: Duty, delta, estimation of evapo-transpiration; Crop water requirements; Design of lined and unlined canals, head works, gravity dams and spillways; Design of weirs on permeable foundation; Types of irrigation systems, irrigation methods; Water logging and drainage; Canal regulatory works, cross-drainage structures, outlets and escapes.

5) Environmental Engineering

Water and Waste Water: Quality standards, basic unit processes and operations for water treatment. Drinking water standards, water requirements, basic unit operations and unit processes for surface water treatment, distribution of water. Sewage and sewerage treatment, quantity and characteristics of wastewater. Primary, secondary and tertiary treatment of wastewater, effluent discharge standards. Domestic wastewater treatment, quantity of characteristics of domestic wastewater, primary and secondary treatment. Unit operations and unit processes of domestic wastewater, sludge disposal.

Air Pollution: Types of pollutants, their sources and impacts, air pollution meteorology, air pollution control, air quality standards and limits.

Municipal Solid Wastes: Characteristics, generation, collection and transportation of solid wastes, engineered systems for solid waste management (reuse/ recycle, energy recovery, treatment and disposal).

Noise Pollution: Impacts of noise, permissible limits of noise pollution, measurement of noise and control of noise pollution.

6) Transportation Engineering

Transportation Infrastructure: Highway alignment and engineering surveys; Geometric design of highways – cross-sectional elements, sight distances, horizontal and vertical alignments; Geometric design of railway track; Airport runway length, taxiway and exit taxiway design.

Highway Pavements: Highway materials – desirable properties and quality control tests; Design of bituminous paving mixes; Design factors for flexible and rigid pavements; Design of flexible pavement using IRC: 37-2012; Design of rigid pavements using IRC: 58-2011; Distresses in concrete pavements.

Traffic Engineering: Traffic studies on flow, speed, travel time – delay and O-D study, PCU, peak hour factor, parking study, accident study and analysis, statistical analysis of traffic data; Microscopic and macroscopic parameters of traffic flow, fundamental relationships; Control devices, signal design by Webster's method; Types of intersections and channelization; Highway capacity and level of service of rural highways and urban roads.

7) Geomatics Engineering

Principles of surveying; Errors and their adjustment; Maps – scale, coordinate system; Distance and angle measurement – Levelling and trigonometric levelling; Traversing and triangulation survey; Total station; Horizontal and vertical curves.

Photogrammetry – scale, flying height; Remote sensing – basics, platform and sensors, visual image interpretation; Basics of Geographical information system (GIS) and Geographical Positioning system (GPS).

Syllabus for the post of ACCOUNTS OFFICER

General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Constitution
- Indian Culture & Heritage
- Indian Polity
- Science & Technology

Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Differences.
- Analysis.
- Relationship Concepts.
- Observation.
- Verbal and Figure Classification.
- Space Visualization.
- Decision Making.
- Arithmetical Number Series.
- Arithmetical Reasoning.
- Judgement.
- Visual Memory.
- Discrimination.

General English & Comprehension (Xth Level) :-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

Basic knowledge of Computer
- Fundamental of computers
  - CPU
  - Memory
  - Hard Disk
  - Input/ Output Devices
  - knowledge of Number System
- Basic concept of Computer (Hardware & Software)
  - Computer Software
  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point

- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers
- Basic knowledge of computer network
  - LAN
  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall
  -

Accounts
- General Aptitude/Awareness
- Accounts
- Financial Management
- Cost Accounting
- Taxation- Direct/ Indirect
- Commercial Laws
- Company Laws
- Auditing
- Ind AS

Syllabus for the post of Revenue Officer

1. **General Knowledge (Xth Level):**
   - Current Affairs- National & International
   - Indian History
   - Indian Geography
   - Indian Polity
   - Science & Technology

2. **Logical Reasoning (Xth Level):**
   - Analogies.
   - Similarities.
   - Problem – Solving.
   - Relationship Concepts.
   - Space Visualization.
   - Arithmetical Number Series.
   - Arithmetical Reasoning

3. **General English & Comprehension (Xth Level)-**
   - Synonyms
   - Antonyms
   - One word substitution
   - Error detection
   - Idioms & Phrases
   - Passage Comprehension

4. **General Hindi (Xth Level) :**
   - Grammar.
   - Vocabulary.
   - Comprehension.
   - Fill in the Blanks.
   - Error Detection.
   - Antonyms.
   - Synonyms.
   - Phrases/Muhavare.

5. **Basic knowledge of Computer**
   - Fundamental of computers
     - CPU
     - Memory
     - Hard Disk
     - Input/ Output Devices
     - knowledge of Number System
   - Basic concept of Computer (Hardware & Software)
     - Computer Software
     - Operating System
     - Computer language
   - Basic knowledge of MS Office
     - MS word
     - MS excel
     - MS Power point
   - Basic knowledge of Internet
     - Web browser
     - E-mail
     - Search Engines
     - Web servers
   - Basic knowledge of computer network
     - LAN
     - WAN
     - MODEM
   - Basic knowledge of cyber security
     - Virus , Malware etc.
     - Warm
     - Internet security
     - Network security
     - Firewall

6. **Management (MBA/ PGDBM) Paper**

   - Management – Concept, Process, Theories and Approaches, Management Roles and Skills
   - Functions – Planning, Organizing, Staffing, Coordinating and Controlling.

- Managerial Economics – Concept & Importance
- Demand analysis – Utility Analysis, Indifference Curve, Elasticity & Forecasting
- Market Structures – Market Classification & Price Determination
- National Income – Concept, Types and Measurement
- Inflation – Concept, Types and Measurement
- Business Ethics & CSR
- Corporate Governance
- Organisational Behaviour – Significance & Theories
- Human Resource Management – Concept, Perspectives, Influences and Recent Trends Human Resource Planning, Recruitment and Selection, Induction, Training and Development
- Job Analysis, Job Evaluation and Compensation Management
- Accounting Principles and Standards, Preparation of Financial Statements
- Financial Statement Analysis – Ratio Analysis, Funds Flow and Cash Flow Analysis, DuPont Analysis
- Preparation of Cost Sheet, Marginal Costing, Cost Volume Profit Analysis
- Financial Management, Concept & Functions
- Capital Structure – Theories, Cost of Capital, Sources and Finance
- Budgeting and Budgetary Control, Types and Process, Zero base Budgeting
- Marketing – Concept, Orientation, Trends and Tasks, Customer Value and Satisfaction
- Origin and concept of Marketing Mix, 7P's – Product, Price, Place, Promotion, People, Process, Physical evidence
- Place and promotion decision – Marketing channels and value networks, VMS, IMC, Advertising and Sales promotion
- Logistics and Supply Chain Management, Drivers, Value creation, Supply Chain Design, Designing and Managing Sales Force, Personal Selling
- Customer Relationship Marketing – Relationship Building, Strategies, Values and Process
- Enterprise Resource Planning – ERP Modules, ERP implementation
- Scheduling; Loading, Sequencing and Monitoring
- Quality Management and Statistical Quality Control, Quality Circles, Total Quality Management – KAIZEN, Benchmarking, Six Sigma; ISO 9000 Series Standards
- Operation Research – Transportation, Queuing Decision Theory, PERT / CPM
- Managing e-Business, Business Process Re_Engineering, System Analysis and Design, Business Intelligence, Database Management System, Management IT-enabled Service.

7. Technical paper

Engineering Mathematics (Common to all stream)
Linear Algebra: Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series, Vector identities, Directional derivatives, Line integral, Surface integral, Volume integral, Stokes's theorem, Gauss's theorem, Green's theorem.

Differential equations: First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's equation, Euler's equation, Initial and boundary value problems, Partial Differential Equations, Method of separation of variables.

Complex variables: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals.

Probability and Statistics: Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis.

Numerical Methods: Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations.

Transform Theory: Fourier Transform, Laplace Transform, z-Transform.

Electrical Engineering/ Power Engineering

Section- 1 : Electric Circuits
Network graph, KCL, KVL, Node and Mesh analysis, Transient response of dc and ac networks, Sinusoidal steady-state analysis, Resonance, Passive filters, Ideal current and voltage sources, Thevenin's theorem, Norton's theorem, Superposition theorem, Maximum power transfer theorem, Two-port networks, Three phase circuits, Power and power factor in ac circuits.

Section- 2 : Signals and Systems
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, Applications of Fourier Transform, Laplace Transform and z-Transform.

Section- 3 : Electrical Machines
Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, parallel operation; Auto-transformer, Electromechanical energy

conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, starting and speed control of dc motors; Three phase induction motors: principle of operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control; Operating principle of single phase induction motors; Synchronous machines: cylindrical and salient pole machines, performance, regulation and parallel operation of generators, starting of synchronous motor, characteristics; Types of losses and efficiency calculations of electric machines.

Section- 4 Power Systems
Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, GaussSeidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over-current, differential and distance protection; Circuit breakers, System stability concepts, Equal area criterion.

Section- 5 : Analog and Digital Electronics
Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response; Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers, Combinational and Sequential logic circuits, Multiplexer, Demultiplexer, Schmitt trigger, Sample and hold circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and Interfacing.

Section – 6" Power Electronics
Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation

For Electronics Engineering -

Section 1: Networks, Signals and Systems

Circuit analysis: Node and mesh analysis, superposition, Thevenin's theorem, Norton's theorem, reciprocity. Sinusoidal steady state analysis: phasors, complex power, maximum power transfer. Time and frequency domain analysis of linear circuits: RL, RC and RLC circuits, solution of network equations using Laplace transform.

Linear 2-port network parameters, wye-delta transformation.

Continuous-time signals: Fourier series and Fourier transform, sampling theorem and applications.

Discrete-time signals: DTFT, DFT, z-transform, discrete-time processing of continuous-time signals. LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeroes, frequency response, group delay, phase delay.

Section 2: Electronic Devices

Energy bands in intrinsic and extrinsic semiconductors, equilibrium carrier concentration, direct and indirect band-gap semiconductors.

Carrier transport: diffusion current, drift current, mobility and resistivity, generation and recombination of carriers, Poisson and continuity equations.

P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell.

Section 3: Analog Circuits
Diode circuits: clipping, clamping and rectifiers.

BJT and MOSFET amplifiers: biasing, ac coupling, small signal analysis, frequency response. Current mirrors and differential amplifiers.

Op-amp circuits: Amplifiers, summers, differentiators, integrators, active filters, Schmitt triggers and oscillators.

Section 4: Digital Circuits
Number representations: binary, integer and floating-point- numbers. Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates and their static CMOS implementations, arithmetic circuits, code converters, multiplexers, decoders.

Sequential circuits: latches and flip-flops, counters, shift-registers, finite state machines, propagation delay, setup and hold time, critical path delay.

Data converters: sample and hold circuits, ADCs and DACs.

Semiconductor memories: ROM, SRAM, DRAM. Computer organization: Machine instructions and addressing modes, ALU, data-path and control unit, instruction pipelining.

Section 5: Control Systems

Basic control system components; Feedback principle; Transfer function; Block diagram representation; Signal flow graph; Transient and steady-state analysis of LTI systems; Frequency response; Routh-Hurwitz and Nyquist stability criteria; Bode and root-locus plots; Lag, lead and laglead compensation; State variable model and solution of state equation of LTI systems.

Section 6: Electromagnetics

Maxwell's equations: differential and integral forms and their interpretation, boundary conditions, wave equation, Poynting vector.

Plane waves and properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth.

Transmission lines: equations, characteristic impedance, impedance matching, impedance transformation, S-parameters, Smith chart.

Rectangular and circular waveguides, light propagation in optical fibers, dipole and monopole antennas, linear antenna arrays.

Syllabus for the post of Assistant IT Manager

1) General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Constitution
- Science & Technology
- Fundamental Knowledge of Computer

2) Logical Reasoning (Xth Level) :
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

3) Quantitative Aptitude (Xth Level) :
- Percentages.
- Time & Work.
- Time & Distance.
- Profit and Loss.
- Simplification.
- Averages.
- Problems on Ages.

4) General English & Comprehension :-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

5) Paper as per syllabus of Engineering degree (Computer Science/ IT) -
1. Basic Concept In Electrical/ Electronics Engineering
2. Digital Electronics
3. Object Oriented Programming
4. Numerical Methods & Computational Techniques
5. Analog Electronics
6. Data Structures
7. Computer Architecture
8. Systems Programming
9. Microprocessor And Its Applications
10. Design & Analysis Of Algorithms
11. Introduction To Java Programming Language
12. Data Base Management System
13. Operating Systems
14. Computer Networks
15. Object Oriented Analysis & Design
16. Principles Of Programming Languages
17. Formal Languages & Automata Theory
18. Web Applications Design Development
19. Distributed Computing
20. Personal Management & Industrial Relation
21. Information Security
22. Fundamentals Of Data Communication
23. Mobiles & Wireless Computing
24. Distributed Data Base
25. Performance Evaluation Of Computer System
26. Optimization Theory
27. Genetic Algorithm
28. Natural Language Processing
29. Neural Networks & Its Application
30. Speech Processing
31. Computer Aided Design & Manufacturing
32. Introduction To Communication System
33. Digital Image Processing
34. Software Engineering
35. Visual Programming
36. Multimedia Technology & Its Application

Syllabus for the post of Junior Electrical Engineer (General)

General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Polity
- Science & Technology

Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

General English & Comprehension (Xth Level)-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

General Hindi (Xth Level) :
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/ Muhavare.

Basic knowledge of Computer
- Fundamental of computers
  - CPU
  - Memory
  - Hard Disk
  - Input/ Output Devices
  - knowledge of Number System
- Basic concept of Computer (Hardware & Software)
  - Computer Software
  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point
- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers
- Basic knowledge of computer network
  - LAN
  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall

Technical paper as per final year syllabus of Diploma in Electrical –
a) Electrical Circuits
b) Electronics I
c) Computer Aided Eng. Drawing
d) Electrical Machines I
e) Communication and Computer Networks
f) Electrical & Electronics Measurements
g) Electronics II
h) Electrical Machine II
i) Electrical Power Generation
j) Transmission and Distribution
k) Power Electronics
l) Switchgear & Protection
m) Embedded System (Elective)
n) Industrial drives & Control
o) Utilization drives & control
p) Utilization of electrical energy & management
q) Basic Management skills and Indian constitution

Syllabus for the post of Junior Electrical Engineer (GTO)

General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Constitution
- Science & Technology
- Fundamental Knowledge of Computer

Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

General English & Comprehension (Xth Level) :-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

General Hindi (Xth Level) :
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

Basic knowledge of Computer (Xth Level)

Technical paper as per syllabus of Diploma in Electrical (Those who are diploma in Electrical) –
a) Electrical Circuits
b) Electronics I
c) Computer Aided Eng. Drawing
d) Electrical Machines I
e) Communication and Computer Networks
f) Electrical & Electronics Measurements
g) Electronics II
h) Electrical Machine II
i) Electrical Power Generation
j) Transmission and Distribution
k) Power Electronics
l) Switchgear & Protection
m) Embedded System (Elective)
n) Industrial drives & Control
o) Utilization drives & control
p) Utilization of electrical energy & management
   Basic Management skills and Indian constitution

Technical paper as per syllabus of Diploma in Electronics (Those who are diploma in Electronics) –
a) Communication System
b) Computer Application for Engineering
c) Construction Management, Accounts & Entrepreneurship Development
d) Electrical Engineering I
e) Electronic Components and Devices.
f) Electronic Devices and Circuits
g) Electronic Instruments and Measurement.
h) Environmental Education & Disaster Management
i) Industrial Electronics & Transducers
j) Industrial Management and Entrepreneurship Development
k) Microprocessor and Application.
l) Modern Communication System
m) Network Filters & Transmission Lines
n) Television Engineering
o) Principles of Digital Electronics
p) Microelectronics
q) Engineering Mechanics & Materials

Technical paper as per syllabus of Diploma in Mechanical (Those who are diploma in Mechanical) –
a) Applied Thermal Engineering
b) Automobile Engineering
c) CNC Machines
d) Computer Integrated Manufacturing
e) Electrical Technology
f) Electronics
g) Fluid Mechanics
h) Industrial Management
i) Machine Design
j) Manufacturing Processes
k) Metrology and Instrumentation
l) Thermal Engineering
m) Power Plant Engineering
n) Strength of Materials

Common Topics for All stream (Diploma)
1. Different types of conductors
2. Different types of insulators
3. IR Value tester/ magger
4. Earth Tester
5. Difference between AB Cable/ UG Cable
6. Transformer
7. Fuse
8. Battery
9. LED

Syllabus for the post of Junior Engineer (Civil)

General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Polity
- Science & Technology

Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

General English & Comprehension (Xth Level):-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

General Hindi (Xth Level):
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

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- Fundamental of computers
  - CPU
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  - Hard Disk
  - Input/ Output Devices
  - knowledge of Number System

- Basic concept of Computer (Hardware & Software)
  - Computer Software
  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point
- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers
- Basic knowledge of computer network
  - LAN
  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall

Technical paper as per final year syllabus of Diploma in Civil-
a) Engineering Drawing
b) Building Material
c) Strength of Material
d) Basic of Hydraulics
e) Concrete Technology
f) Surveying
g) Basics of Steel Design.
h) Transportation Engineering
i) Estimating, coasting & Value
j) Basics of Irrigation Engg.
k) Basics of Environmental Engineering
l) Basics of Soil Mechanics
m) Basics of RCC Design

Syllabus for the post of Legal Supervisor

General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Polity
- Science & Technology

Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning.

General English & Comprehension (Xth Level) :-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

General Hindi (Xth Level):
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

Basic knowledge of Computer
- Fundamental of computers
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  - Memory
  - Hard Disk
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  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point
- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers

- Basic knowledge of computer network
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  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall

Common syllabus defined for the Law Graduates –
1. LAW OF CONTRACT (GENERAL PRINCIPLES OF FORMATION OF CONTRACT)
2. CONSTITUTIONAL LAW
3. INDIAN PENAL CODE
4. HUMAN RIGHTS LAW AND PRACTICE
5. RIGHT TO INFORMATION
6. LAW OF TORTS INCLUDING MOTER VECHILES ACCIDENT ACT AND CONSUMER PROTECTION LAWS.
7. CRIMINAL PROCEDURE CODE, JUVENILE JUSTICE (CARE AND PROTECTION) ACT AND PROBATION OF OFFENDERS ACT.
8. PROPERTY LAW
9. FAMILY LAW (HINDU & MUSLIM)
10. PUBLIC INTERNATIONAL LAW
11. ADMINISTRATIVE LAW
12. CYBER LAW
13. CIVIL PROCEDURE CODE AND LIMITATION ACT
14. LAW OF EVIDENCE
15. COMPANY LAW
16. PATENT LAW
17. INTELLECTUAL PROPERTY RIGHTS LAW & IPR LITIGATION
18. LABOUR & INDUSTRIAL LAW
19. INTERPRETATION OF STATUTES AND PRINCIPALS OF LEGISLATION
20. INSURANCE LAW
21. ARBITRATIONS & CONCILIATION ACT, 1996
22. **LAW RELATED TO ELECTRICITY**

Syllabus for the post of
Assistant / Correspondence Clerk/ Store Assistant

1) General Knowledge (Xth Level) :
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Constitution
- Science & Technology

2) Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Relationship Concepts.
- Space Visualization.
- Arithmetical Number Series.
- Arithmetical Reasoning

3) Quantitative Aptitude (Xth Level) :
- Percentages.
- Time & Work.
- Time & Distance.
- Profit and Loss.
- Simplification.
- Averages.
- Problems on Ages.

4) General English & Comprehension (Xth Level):-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

5) General Hindi (Xth Level):
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

6) Basic knowledge of Computer
- Fundamental of computers
  - CPU
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  - Hard Disk
  - Input/ Output Devices
  - knowledge of Number System
- Basic concept of Computer (Hardware & Software)
  - Computer Software
  - Operating System
  - Computer language
- Basic knowledge of MS Office
  - MS word
  - MS excel
  - MS Power point
- Basic knowledge of Internet
  - Web browser
  - E-mail
  - Search Engines
  - Web servers
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  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
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  - Internet security
  - Network security
  - Firewall

Syllabus for the post of
Junior Accounts Clerk/ Junior Account Assistant

1) General Knowledge (Xth Level):
- Current Affairs- National & International
- Indian History
- Indian Geography
- Indian Constitution
- Indian Culture & Heritage
- Indian Polity
- Science & Technology

2) Logical Reasoning (Xth Level):
- Analogies.
- Similarities.
- Problem – Solving.
- Differences.
- Analysis.
- Relationship Concepts.
- Observation.
- Verbal and Figure Classification.
- Space Visualization.
- Decision Making.
- Arithmetical Number Series.
- Arithmetical Reasoning.
- Judgement.
- Visual Memory.
- Discrimination.

3) General English & Comprehension (Xth Level):-
- Synonyms
- Antonyms
- One word substitution
- Error detection
- Idioms & Phrases
- Passage Comprehension

4) General Hindi (Xth Level):
- Grammar.
- Vocabulary.
- Comprehension.
- Fill in the Blanks.
- Error Detection.
- Antonyms.
- Synonyms.
- Phrases/Muhavare.

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  - WAN
  - MODEM
- Basic knowledge of cyber security
  - Virus , Malware etc.
  - Warm
  - Internet security
  - Network security
  - Firewall

6) Commerce :
- Company Accounts Introduction
- Company's Act 1956 (with amendments)
- Audit & Financial Management
- Taxation – Direct/ Indirect
- Balance Sheet
- Profit and Loss Accounts
- Costing & cost analysis
- Accounting concept
- Single entry system and rectification of error
- Bank reconciliation statement