



EMPLOYMENT NOTICE NO.- 10/2018 (INTERNAL)

***This Employment Notice is only for the workmen
who are working in regular establishment
in BSPHCL & its four Subsidiary Companies
(NBPDC, SBPDCL, BSPTCL & BSPGCL)***

**[POST : - ASSISTANT ELECTRICAL ENGINEER /
ASSISTANT ENGINEER (CIVIL) /
IT MANAGER / ASSISTANT IT MANAGER /
ASSISTANT PERSONNEL OFFICER/ASSISTANT/
JUNIOR ACCOUNTS CLERK / STENOGRAPHER]**

- 1) Bihar State Power (Holding) Company Ltd. (BSPHCL) invites **On-line Application** for itself and its subsidiary companies namely North Bihar Power Distribution Company Limited (NBPDC), 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 5 (five) years in BSPHCL & its four Subsidiary Companies (NBPDC, SBPDCL, BSPTCL & BSPGCL) for appointment on the posts as mentioned below :-

- 2) **Total Vacancies is as detailed below :-**

Sl. No.	Name of the post	Total No of Posts	Category										
			UR		SC		ST		EBC		BC		Female (BC)
			G	W	G	W	G	W	G	W	G	W	
1	Assistant Electrical Engineer	15	5	3	1	1	0	0	2	1	1	1	0
2	Assistant Engineer (Civil)	2	1	0	0	0	0	0	1	0	0	0	0
3	IT Manager	3	1	0	0	0	0	0	1	1	0	0	0
4	Assistant IT Manager	23	8	4	2	1	0	0	3	1	2	1	1
5	Assistant Personnel Officer	13	5	2	1	1	0	0	1	1	1	1	0
6	Assistant	10	3	2	1	1	0	0	1	1	1	0	0
7	Junior Accounts Clerk	96	32	16	10	5	1	0	11	6	8	4	3
8	Stenographer	13	5	2	1	1	0	0	1	1	1	1	0

- UR stands for Unreserved, 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 and "W" stands for Women.

3) **No. of posts reserved under Divyang (PHP) quota and freedom fighter quota against the total no. of vacancy for each post is as follows -**

Sl. No.	Post	Total No. of Vacancy	No. of post fallen under Divyang (PHP)					No. of post fallen under Freedom fighter quota
			VH	HH	OH	MH	Total Divyang	
1	Assistant Electrical Engineer	15	1	0	0	0	1	0
2	Assistant Engineer (Civil)	2	0	0	0	0	0	0
3	IT Manager	3	0	0	0	0	0	0
4	Assistant IT Manager	23	1	0	0	0	1	0
5	Assistant Personnel Officer	13	1	0	0	0	1	0
6	Assistant	10	0	0	0	0	0	0
7	Junior Accounts Clerk	96	1	1	1	1	4	1
8	Stenographer	13	1	0	0	0	1	0

Note :-

- (i) The post for Divyang (Physically Challenged) Candidates will be reserved as per Govt. of Bihar rules circulated vide memo no.- 13062 dt. 12.10.2017.
- (ii) The reservation for Women will be as per the General Administration, Govt. of Bihar rules circulated vide letter no.- 2342 dt. 15.02.2016.
- (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. rules circulated vide letter no.- 2526 dt. 18.02.2016.
- (iv) Female (BC) reserve category includes women candidate of SC, ST, EBC and BC category, for this category the candidate must be domicile of Bihar.
- (v) The numbers of posts are subject to change as per requirement of the companies without giving any prior notice.

4) **QUALIFICATION & ELIGIBILITY :**

Sl. No.	Name of the post	Requisite Qualification	Category/ Class of the employee of BSPHCL who may apply
1	Assistant Electrical Engineer	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 employee of the company other than JEE Class – III & IV (Workmen)
2	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 employee of the company other than JE (C) Class – III & IV (Workmen)

Sl. No.	Name of the post	Requisite Qualification	Category/ Class of the employee of BSPHCL who may apply
3	IT Manager	MCA from any Govt. recognized Institution/ University Or Full time B.E./ B.Tech./B.Sc. (Engg.) in Computer Science / IT from any Govt. recognized Institution/ University approved by AICTE.	Those candidates who had not been selected under ENN-9/2016 (Internal) and meanwhile promoted to the post of AITM or equivalent post but working on the lower post than of ITM or its equivalent post. Or Class – III & IV (Workmen)
4	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)
5	Assistant Personnel Officer	Post Graduate Degree (Labour and Social Welfare) Or MBA (Personnel management / Human Resource) Or Two Years PG Diploma in Personnel Management and Industrial Relation/ Human Resource Management from UGC/ Govt. recognized University/ Institution.	Class – III & IV (Workmen)
6	Assistant	Graduate in any discipline from any recognised University.	Class IV (Workmen) only
7	Junior Accounts Clerk	Graduate in commerce from any recognised University.	Class IV (Workmen) only
8	Stenographer	(i) Graduate in any discipline from any recognised University and (ii) Possessing a Minimum Shorthand speed of 80 W.P.M. in English. Knowledge of English and Hindi both stenography will be preferred. Desirable :- Certificate in Computer course recognized by AICTE/ DOEACC or Course equivalent to 'O' level in terms of syllabus and duration of course as prescribed by DOEACC.	Class IV (Workmen) only

NOTE : The applicants must possess the required qualifications and eligibility criteria on the date of submission of application. Appearing candidates will not be applicable to fill up the application form.

5) Minimum service length to apply for this recruitment (as on 01.08.2018) : -

The workmen of BSPHCL or its subsidiary companies must assure before filling online application that they have been working on regular establishment for minimum 5 (five) years (including probation period) in BSPHCL & its four Subsidiary Companies (NBPDC, SBPDCL, BSPTCL & BSPGCL).

6) **PROBATION PERIOD :**

The recruited candidates will remain on probation for the following period :-

Sl. No.	Post	Probation Period from the date of appointment
1	Assistant Electrical Engineer	3 Years
2	Assistant Engineer (Civil)	3 Years
3	IT Manager	2 Years
4	Assistant IT Manager	2 Years
5	Assistant Personnel Officer	2 Years
6	Assistant	2 Years
7	Junior Accounts Clerk	2 Years
8	Stenographer	2 Years

If during probation period, the performance is not found satisfactory, the services will be reverted to their original post.

7) **REMUNERATION :-**

Sl. No.	Post	Level in 7 th PRC
1	Assistant Electrical Engineer	Level - 8
2	Assistant Engineer (Civil)	Level - 8
3	IT Manager	Level - 8
4	Assistant IT Manager	Level - 7
5	Assistant Personnel Officer	Level - 7
6	Assistant	Level - 5
7	Stenographer	Level - 5
8	Junior Accounts Clerk	Level - 4

8) **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) 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.

9) **AGE (As on 01/08/2018) :-**

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

10) **APPLICATION FEE :**

- a) Application fee is Rs.1,000/- (Rupees One thousand) only for UR, BC, EBC candidates and for SC/ ST of Bihar domicile & Divyang is Rs.250/- (Rupees Two hundred fifty) only.
- b) Fee will be accepted through online payment mode only.

11) **MODE OF SELECTION :**

- a) Candidates would be shortlisted on the basis of marks obtained in **PAPER BASED WRITTEN EXAM (OMR Based). Syllabus is attached for all the posts.**
- 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.
 - ***There will not be CLT, the question related to computers will be asked in paper based examination.***

12) **IMPORTANT DATES :**

a. Online Registration starting date	16.10.2018 (from 11:00 AM)
b. Closing date for online submission of application	31.10.2018 (till 6:00 PM)
c. Last date of payment through Net Banking/ Debit Card/ Credit Card etc.	31.10.2018 (till 6:00 PM)
d. Period for Modification/ edit in application form, if required by the candidate	01.11.2018 to 02.11.2018 (till 6:00 PM)
e. Tentative Date of Examination (OMR BASED)	2nd week of December 2018

Candidates are advised to regularly keep in touch with the authorized BSPHCL website www.bspocl.bih.nic.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.

13) **HOW TO APPLY :-**

- a. The applicants are to apply through "ON LINE" on the Website of www.bspocl.bih.nic.in. The Website will open from **16/10/2018**.
- b. After filling up the ON-LINE application; Candidates must take a print out of the **Registration Form** for future reference and downloading of Admit Cards etc.

14) **IMPORTANT INSTRUCTION BEFORE FILLING ON-LINE APPLICATIONS: -**

- a. **For each post candidates have to fill separate online application form. It means if a candidate is eligible for two posts, they have to apply separately for each post.**
- b. Please note that eligibility criteria specified herein are the basic criteria for applying for the post.

Please note that 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 i.e. **01.11.2018 to 02.11.2018 (till 6:00 PM)**.

After the due date, no change/ modification will be permitted at any stage and the result will be processed considering details which has been indicated in the online application.

- c. 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.
- d. E-mail ID and Mobile Number furnished must remain valid for at least one year 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.
- e. Candidates must possess the prescribed minimum qualification conditions/criteria required for the post applied on the **DATE OF SUBMISSION OF APPLICATION.** **Age will be calculated as on 01/08/2018.**
- f. 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.
- g. The Online Application involves the following process:-
 1. **Registration (including service history) / Login,**
 2. **Personal 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.**
- h. 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.
- i. 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, write to us on **Email ID:** employment@bspchl.co.in
- j. The Candidates will be liable for severe legal action if any false information with respect of name, father's name date of birth, address, educational qualification, percentage of marks, caste certificate, photographs etc. is furnished by him/ her.
- k. The BSPHCL reserves the right to cancel the selection process at any stage and increase or decrease the nos. of posts to be filled according to the exigencies of the Companies.
- l. Shortlisted Candidates will be called for document verification/ counseling.
- m. 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.
- n. Canvassing in any form shall debar the candidate from selection.

- o. In case of Name/Surname changed, a copy of Gazette of that effect should be submitted as and when required.
 - p. No TA/ DA will be paid to the Candidate, if called for paper based test / documents verification etc.
 - q. Mere submission of application does not guarantee the adequacy of candidature for being considered for selection process.
 - r. Provisional Admit Card will be issued only on the basis of information furnished by the applicant.
 - s. **The selected candidates shall have to produce relieving letter from the present employer at the time of joining his duty on the selected post.**
 - t. Print a copy of finally submitted application form for future reference.
 - u. No refund of application fee once deposited shall be made.
- 15) The candidates outside from BSPHCL or its Subsidiary Company (NBPDC/ 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.**
- 16) The BSPHCL will not be responsible for any printing mistakes.
- 17) For any inquiry, candidates are advised to post their query to Email address- employment@bspchl.co.in or contact on mobile no. -9262296789 specially meant for this recruitment during office/ working hours.

Sd./-
(Rajiva Ranjan Sinha)
GM (HR/Adm.)

SYLLABUS FOR PAPER BASED WRITTEN EXAM (OMR Based)

Post :- Assistant Electrical Engineer

<p>1. <u>General Knowledge (Xth Level):</u></p> <ul style="list-style-type: none">• Current Affairs- National & International• Indian History• Indian Geography• Indian Polity• Science & Technology <p>2. <u>Logical Reasoning (Xth Level):</u></p> <ul style="list-style-type: none">• Analogies.• Similarities.• Problem – Solving.• Relationship Concepts.• Space Visualization.• Arithmetical Number Series.• Arithmetical Reasoning <p>3. <u>General English & Comprehension (Xth Level)-</u></p> <ul style="list-style-type: none">• Synonyms• Antonyms• One word substitution• Error detection• Idioms & Phrases• Passage Comprehension <p>4. <u>General Hindi (Xth Level) :</u></p> <ul style="list-style-type: none">• Grammar.• Vocabulary.• Comprehension.• Fill in the Blanks.• Error Detection.• Antonyms.• Synonyms.• Phrases/Muhavare. <p>5. <u>Basic knowledge of Computer</u></p> <ul style="list-style-type: none">• Fundamental of computers<ul style="list-style-type: none">○ CPU○ Memory○ Hard Disk○ Input/ Output Devices○ knowledge of Number System• Basic concept of Computer (Hardware & Software)<ul style="list-style-type: none">○ Computer Software○ Operating System○ Computer language• Basic knowledge of MS Office<ul style="list-style-type: none">○ MS word○ MS excel○ MS Power point• Basic knowledge of Internet<ul style="list-style-type: none">○ Web browser○ E-mail○ Search Engines○ Web servers• Basic knowledge of computer network<ul style="list-style-type: none">○ LAN○ WAN○ MODEM• Basic knowledge of cyber security<ul style="list-style-type: none">○ Virus , Malware etc.○ Warm○ Internet security○ Network security○ Firewall	<p>6. <u>Technical paper (Electrical/ Electrical & Electronics) =</u></p> <p>1) <u>Engineering Mathematics</u></p> <p>Linear Algebra: Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors.</p> <p>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.</p> <p>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.</p> <p>Complex variables: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals.</p> <p>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.</p> <p>Numerical Methods: Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations.</p> <p>Transform Theory: Fourier Transform, Laplace Transform, z-Transform.</p> <p><u>Electrical Engineering</u></p> <p>2) <u>Electric Circuits</u></p> <p>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.</p> <p>3) <u>Electromagnetic Fields</u></p> <p>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.</p> <p>4) <u>Signals and Systems</u></p> <p>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.</p>	<p>5) <u>Electrical Machines</u></p> <p>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.</p> <p>6) <u>Power Systems</u></p> <p>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, Gauss-Seidel 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.</p> <p>7) <u>Control Systems</u></p> <p>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.</p> <p>8) <u>Electrical and Electronic Measurements</u></p> <p>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.</p> <p>9) <u>Analog and Digital Electronics</u></p> <p>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, 8085 Microprocessor: Architecture, Programming and Interfacing.</p> <p>10) <u>Power Electronics</u></p> <p>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</p>
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SYLLABUS FOR PAPER BASED WRITTEN EXAM (OMR Based)

POST :- ASSISTANT ENGINEER (CIVIL)

<p>1. General Knowledge (Xth Level):</p> <ul style="list-style-type: none"> • Current Affairs- National & International • Indian History • Indian Geography • Indian Polity • Science & Technology <p>2. Logical Reasoning (Xth Level):</p> <ul style="list-style-type: none"> • Analogies. • Similarities. • Problem – Solving. • Relationship Concepts. • Space Visualization. • Arithmetical Number Series. • Arithmetical Reasoning <p>3. General English & Comprehension (Xth Level):</p> <ul style="list-style-type: none"> • Synonyms • Antonyms • One word substitution • Error detection • Idioms & Phrases • Passage Comprehension <p>4. General Hindi (Xth Level):</p> <ul style="list-style-type: none"> • Grammar. • Vocabulary. • Comprehension. • Fill in the Blanks. • Error Detection. • Antonyms. • Synonyms. • Phrases/Muhavare. <p>5. Basic knowledge of Computer</p> <ul style="list-style-type: none"> • Fundamental of computers <ul style="list-style-type: none"> ○ CPU ○ Memory ○ Hard Disk ○ Input/ Output Devices ○ knowledge of Number System • Basic concept of Computer (Hardware & Software) <ul style="list-style-type: none"> ○ Computer Software ○ Operating System ○ Computer language • Basic knowledge of MS Office <ul style="list-style-type: none"> ○ MS word ○ MS excel ○ MS Power point • Basic knowledge of Internet <ul style="list-style-type: none"> ○ Web browser ○ E-mail ○ Search Engines ○ Web servers • Basic knowledge of computer network <ul style="list-style-type: none"> ○ LAN ○ WAN ○ MODEM • Basic knowledge of cyber security <ul style="list-style-type: none"> ○ Virus , Malware etc. ○ Warm ○ Internet security ○ Network security ○ Firewall 	<p>6. Technical paper (Civil Engineering/ Construction Engineering) –</p> <p>1) Engineering Mathematics</p> <p>Linear Algebra: Matrix algebra; Systems of linear equations; Eigen values and Eigen vectors.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>2) Structural Engineering</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>3) Geotechnical Engineering</p> <p>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.</p> <p>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.</p> <p>4) Water Resources Engineering</p> <p>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.</p>	<p>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</p> <p>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.</p> <p>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.</p> <p>5) Environmental Engineering</p> <p>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.</p> <p>Air Pollution: Types of pollutants, their sources and impacts, air pollution meteorology, air pollution control, air quality standards and limits.</p> <p>Municipal Solid Wastes: Characteristics, generation, collection and transportation of solid wastes, engineered systems for solid waste management (reuse/ recycle, energy recovery, treatment and disposal).</p> <p>Noise Pollution: Impacts of noise, permissible limits of noise pollution, measurement of noise and control of noise pollution.</p> <p>6) Transportation Engineering</p> <p>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.</p>	<p>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.</p> <p>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.</p> <p>7) Geomatics Engineering</p> <p>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.</p> <p>Photogrammetry – scale, flying height; Remote sensing – basics, platform and sensors, visual image interpretation; Basics of Geographical information system (GIS) and Geographical Positioning system (GPS).</p>
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SYLLABUS FOR PAPER BASED WRITTEN EXAM (OMR Based)

POST :- IT Manager

1) General Knowledge / Studies

2) 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 PAPER BASED WRITTEN EXAM (OMR Based)

POST :- Assistant IT Manager

<p>1) <u>General Knowledge (Xth Level):</u></p> <ul style="list-style-type: none">• Current Affairs- National & International• Indian History• Indian Geography• Indian Constitution• Science & Technology• Fundamental Knowledge of Computer <p>2) <u>Logical Reasoning (Xth Level) :</u></p> <ul style="list-style-type: none">• Analogies.• Similarities.• Problem – Solving.• Relationship Concepts.• Space Visualization.• Arithmetical Number Series.• Arithmetical Reasoning <p>3) <u>Quantitative Aptitude (Xth Level) :</u></p> <ul style="list-style-type: none">• Percentages.• Time & Work.• Time & Distance.• Profit and Loss.• Simplification.• Averages.• Problems on Ages. <p>4) <u>General English & Comprehension :-</u></p> <ul style="list-style-type: none">• Synonyms• Antonyms• One word substitution• Error detection• Idioms & Phrases• Passage Comprehension	<p>5) <u>Paper as per syllabus of Engineering degree (Computer Science/ IT) -</u></p> <ol style="list-style-type: none">1. Basic Concept In Electrical/ Electronics Engineering2. Digital Electronics3. Object Oriented Programming4. Numerical Methods & Computational Techniques5. Analog Electronics6. Data Structures7. Computer Architecture8. Systems Programming9. Microprocessor And Its Applications10. Design & Analysis Of Algorithms11. Introduction To Java Programming Language12. Data Base Management System13. Operating Systems14. Computer Networks15. Object Oriented Analysis & Design16. Principles Of Programming Languages17. Formal Languages & Automata Theory18. Web Applications Design Development19. Distributed Computing20. Personal Management & Industrial Relation21. Information Security22. Fundamentals Of Data Communication23. Mobiles & Wireless Computing24. Distributed Data Base25. Performance Evaluation Of Computer System26. Optimization Theory27. Genetic Algorithm28. Natural Language Processing29. Neural Networks & Its Application30. Speech Processing31. Computer Aided Design & Manufacturing32. Introduction To Communication System33. Digital Image Processing34. Software Engineering35. Visual Programming36. Multimedia Technology & Its Application
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SYLLABUS FOR PAPER BASED WRITTEN EXAM (OMR Based)

POST :- Assistant Personnel Officer

<p>1) <u>General Knowledge (Xth Level):</u></p> <ul style="list-style-type: none">• Current Affairs- National & International• Indian History• Indian Geography• Indian Polity• Science & Technology <p>2) <u>Logical Reasoning (Xth Level) :</u></p> <ul style="list-style-type: none">• Analogies.• Similarities.• Problem – Solving.• Relationship Concepts.• Space Visualization.• Arithmetical Number Series.• Arithmetical Reasoning <p>3) <u>General English & Comprehension (Xth Level) :-</u></p> <ul style="list-style-type: none">• Synonyms• Antonyms• One word substitution• Error detection• Idioms & Phrases• Passage Comprehension <p>4) <u>General Hindi (Xth Level):</u></p> <ul style="list-style-type: none">• Grammar.• Vocabulary.• Comprehension.• Fill in the Blanks.• Error Detection.• Antonyms.• Synonyms.• Phrases/Muhavare. <p>5) <u>Basic knowledge of Computer</u></p> <ul style="list-style-type: none">• Fundamental of computers<ul style="list-style-type: none">○ CPU○ Memory○ Hard Disk○ Input/ Output Devices○ knowledge of Number System• Basic concept of Computer (Hardware & Software)<ul style="list-style-type: none">○ Computer Software○ Operating System○ Computer language• Basic knowledge of MS Office<ul style="list-style-type: none">○ MS word○ MS excel○ MS Power point• Basic knowledge of Internet<ul style="list-style-type: none">○ Web browser○ E-mail○ Search Engines○ Web servers• Basic knowledge of computer network<ul style="list-style-type: none">○ LAN○ WAN○ MODEM• Basic knowledge of cyber security<ul style="list-style-type: none">○ Virus , Malware etc.○ Warm○ Internet security○ Network security○ Firewall	<p>6) <u>Common syllabus defined for the Degree/ Diploma in Labour and Social Welfare / Personnel management and Industrial Relation/ MBA with Specialization in Personnel Management –</u></p> <p>1. <u>HRM :</u></p> <ul style="list-style-type: none">• Acquisition of Human Resources –<ul style="list-style-type: none">i. Human Resource Planningii. Human Resource Information Systemiii. Recruitment and Selection Strategies• Developing Human Resources -<ul style="list-style-type: none">i. Training and Developing Employeesii. Concept of Human Resource Developmentiii. Performance Management & Appraisal Systemiv. Motivationv. Participative Managementvi. Career Developmentvii. Role of HR towards society - CSR• Maintenance of Human Resources -<ul style="list-style-type: none">i. Industrial Relation / Labour Relations and Collective Bargainingii. Compensation Managementiii. Strategic Human Resource Managementiv. Employee Safety and Health <p>2. <u>Labour Laws :</u></p> <p>3. <u>Specific Laws related to Women Employees-</u></p> <ul style="list-style-type: none">i. Sexual Harassment at work placeii. Domestic Violence Actiii. Maternity Benefit Activ. Equal Remuneration Act
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SYLLABUS FOR PAPER BASED WRITTEN EXAM (OMR Based)

POST :- Assistant

<p>1) <u>General Knowledge (Xth Level) :</u></p> <ul style="list-style-type: none">• Current Affairs- National & International• Indian History• Indian Geography• Indian Constitution• Science & Technology <p>2) <u>Logical Reasoning (Xth Level):</u></p> <ul style="list-style-type: none">• Analogies.• Similarities.• Problem – Solving.• Relationship Concepts.• Space Visualization.• Arithmetical Number Series.• Arithmetical Reasoning <p>3) <u>Quantitative Aptitude (Xth Level) :</u></p> <ul style="list-style-type: none">• Percentages.• Time & Work.• Time & Distance.• Profit and Loss.• Simplification.• Averages.• Problems on Ages. <p>4) <u>General English & Comprehension (Xth Level):-</u></p> <ul style="list-style-type: none">• Synonyms• Antonyms• One word substitution• Error detection• Idioms & Phrases• Passage Comprehension <p>5) <u>General Hindi (Xth Level):</u></p> <ul style="list-style-type: none">• Grammar.• Vocabulary.• Comprehension.• Fill in the Blanks.• Error Detection.• Antonyms.• Synonyms.• Phrases/Muhavare.	<p>6) <u>Basic knowledge of Computer</u></p> <ul style="list-style-type: none">• Fundamental of computers<ul style="list-style-type: none">○ CPU○ Memory○ Hard Disk○ Input/ Output Devices○ knowledge of Number System• Basic concept of Computer (Hardware & Software)<ul style="list-style-type: none">○ Computer Software○ Operating System○ Computer language• Basic knowledge of MS Office<ul style="list-style-type: none">○ MS word○ MS excel○ MS Power point• Basic knowledge of Internet<ul style="list-style-type: none">○ Web browser○ E-mail○ Search Engines○ Web servers• Basic knowledge of computer network<ul style="list-style-type: none">○ LAN○ WAN○ MODEM• Basic knowledge of cyber security<ul style="list-style-type: none">○ Virus , Malware etc.○ Warm○ Internet security○ Network security○ Firewall
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SYLLABUS FOR PAPER BASED WRITTEN EXAM (OMR Based)

POST :- Junior Accounts Clerk

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.

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) 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

SYLLABUS FOR PAPER BASED WRITTEN EXAM (OMR Based)

POST :- Stenographer

<p><u>General Knowledge (Xth Level):</u></p> <ul style="list-style-type: none">• Current Affairs- National & International• Indian History• Indian Geography• Indian Polity• Science & Technology <p><u>Logical Reasoning (Xth Level):</u></p> <ul style="list-style-type: none">• Analogies.• Similarities.• Problem – Solving.• Relationship Concepts.• Space Visualization.• Arithmetical Number Series.• Arithmetical Reasoning <p><u>Quantitative Aptitude (Xth Level) :</u></p> <ul style="list-style-type: none">• Percentages.• Time & Work.• Time & Distance.• Profit and Loss.• Simplification.• Averages.• Problems on Ages. <p><u>General English & Comprehension (Xth Level) :-</u></p> <ul style="list-style-type: none">• Synonyms• Antonyms• One word substitution• Error detection• Idioms & Phrases• Passage Comprehension <p><u>General Hindi (Xth Level):</u></p> <ul style="list-style-type: none">• Grammar.• Vocabulary.• Comprehension.• Fill in the Blanks.• Error Detection.• Antonyms.• Synonyms.• Phrases/Muhavare.	<p><u>Basic knowledge of Computer</u></p> <ul style="list-style-type: none">• Fundamental of computers<ul style="list-style-type: none">○ CPU○ Memory○ Hard Disk○ Input/ Output Devices○ knowledge of Number System• Basic concept of Computer (Hardware & Software)<ul style="list-style-type: none">○ Computer Software○ Operating System○ Computer language• Basic knowledge of MS Office<ul style="list-style-type: none">○ MS word○ MS excel○ MS Power point• Basic knowledge of Internet<ul style="list-style-type: none">○ Web browser○ E-mail○ Search Engines○ Web servers• Basic knowledge of computer network<ul style="list-style-type: none">○ LAN○ WAN○ MODEM• Basic knowledge of cyber security<ul style="list-style-type: none">○ Virus , Malware etc.○ Warm○ Internet security○ Network security○ Firewall
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