Annexure- II A. O.

INDICATIVE SYLLABUS FOR VARIOUS POSTS

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acyli		INDICATIVE SYLLABUS FOR VARIOUS POSTS	
pharm	Гhe deta	iled post wise syllabus for CBT is furnished as under :-	
•	SL No.	PART- A (Common for all the Group B & C posts)	
	1.	GENERAL AWARENESS	
- All	, ind. co. if	 Major current Events and Issues of India and World Event of National and International Importance Persons and places in recent news Games and Sports related Activities etc. Social media, Role of ICT and AI in Modern times. 	18.001
armac	2.	REASONING	
Sho.		 Analytical Reasoning Mental Ability: Number series, Letter series, Odd man out, Coding-Decoding, Problems relating to Relations, Shapes, and their sub-sections Basic Numeracy: Elementary knowledge of Mathematical and Statistical Analysis Data Analysis (Tables, Bar diagram, Line graph, Pie-chart) 	
	3. 1	MATHEMATICS	,in
natmachin	510. C	 ARITHMETIC:- (i) Number systems: Natural Numbers, Integers, Rational and Irrational numbers, Real numbers, Divisors of an Integer, prime Integers, L.C.M. and H.C.F. of integers and their Interrelationship. (ii) Average (iii) Ratio and proportion (iv) Percentage (v) Profit and Loss (vi) Simple and Compound Interests (vii) Work and Time (viii) Speed, Time and Distance 	Na.
<i>Q</i> ,		• ALGEBRA:- (i) Factors of polynomials, L.C.M. and H.C.F. of polynomials and their interrelationship, Remainder theorem, simultaneous linear equations, quadratic equations. (ii) Set Theory:- Set, null set, subsets and proper subsets of a set, operations (Union, Intersections, difference, symmetric difference) between sets, venn diagram.	
	10.0 ¹	• GEOMETRY:- (i) Constructions and theorems regarding triangle, rectangle, square, trapezium and circles, their perimeter and area. (ii) Volume and surface area of sphere, right circular cylinder, right circular Cone and Cube.	12.00.11
pharmacyin		 STATISTICS:- Collection of data, Classification of data, frequency, frequency distribution, tabulation, cumulative frequency. Representation of data - Bar diagram, Pie chart, histogram, frequency polygon, cumulative frequency curves (ogives), Measures of Central tendency: Arithmetic Mean, Median and Mode. 	».
	4.	• GENERAL HINDI	
2:	jia.co.ji	(हिंदी वर्णमाला, विराम चिह्न, शब्द रचना, वाक्य रचना, अर्थ, शब्द रूप, सधि, समास, क्रियाए, अनेकार्थी शब्द, विलोम शब्द, पर्यायवाची शब्द, मुहावरे और लोकोक्तियाँ, तत्सम एवं तद्भव, देशज, विदेशी (शब्द भण्डार), वर्तनी, अर्थ बोध, हिंदी भाषा के प्रयोग में होने वाली अशुद्धियाँ, हिंदी की प्रमुख बोलियाँ) • GENERAL ENGLISH	18.CO.H
pharmacyn		 (Active Voice and Passive Voice, Parts of Speech, Transformation of Sentences, Direct and Indirect Speech, Punctuation and Spellings, Words meanings, Vocabulary & Usage, Idioms and Phrases, Fill in the Blanks), Hindi & English Comprehension, Communication Skill 	

COMPUTER AWARENESS

5.

COMPUTER BASICS: Organization of a computer, Central Processing Unit (CPU), input/ output devices, computer memory, memory organization, back- up devices, PORTs, Windows Explorer. Keyboard shortcuts.

SOFTWARE: Windows Operating system including basics of Microsoft Office like MS word, MS Excel and Power Point etc.

WORKING WITH INTERNET AND E-MAILS: Web Browsing &

Searching, Downloading & Uploading, Managing an E-mail Account, e-Banking.

BASICS OF NETWORKING AND CYBER SECURITY: Networking devices and protocols, Network and information security threats (like hacking, virus, worms, Trojan etc.) and preventive measures.

Post Name	Part B – (Syllabus of the specialization)
Student Activity	Physical Education and Sports:
& Sports (SAS)	
Officer	i) Physical education and adapted physical education, their
	objectives Philosophies of education as applied to physical
	education, Growth and development of physical education in
11	India, Wellness- its importance, benefits and challenges. Social
co.	aspects of sports- sports as a socializing agency, social values,
· 0	sports leadership, Ancient & Modern Olympics games, Asian
	and Commonwealth games. Structure and functions of
	international and national bodies controlling various games
	and sports. Prominent honours and awards in games and
	sports.
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	ii) Exercise physiology its scope and importance in the field of
	physical education and sports. Cardio respiratory adaptations
	to long and short term physical activities. Muscle- its types,
	characteristics and functions. Microscopic structure of muscle
20	fibre. Types of muscle fibres and sports performance. Muscular
Q.11	adaptations to exercise. Bio-chemical aspects of exercise -
: D'	Metabolism of food products. Aerobic and anaerobic systems
Ole -	during rest and exercise. Recovery process - Physiological
	aspects of fatigue.
	iii) Winneislams and bien Obasies Madama tranda in
	III) Kinesiology and Diomechanics. Modern trends in
	bioinechanics. Planes and Axes of human body. Joints and then movements. Muscle attachments. Origin, insertion, action
	and leverage of the principal muscles used in sports. Motion:
	its laws and their application in sports. Mechanical advantage
	and applications of Levers in sports. Kinesiological Muscular
	and mechanical analyses of fundamental movements:
20	
c,O,N	iv) Sports psychology- its importance in the field of physical
	education and sports. Motivation in sports- types, theories and
01-	dynamics. Psychological factors affecting sports performance-
	Emotions, Anxiety aggression, stress self-confidence,
	concentration, mental practice and goal setting. Personality-
	Theories of personality, measurement of personality. Long and
	short term psychological preparation for
	performance/competition. Psychological skill training for
	activation and relaxation

Health- its objectives, Health education, its importance. Health- related physical fitness. Body weight control and its significance on health. Role of exercise, dieting and combination of exercise & dieting on weight control. Effects of pollution on health, Preventive and safety measures from pollution. Nutrition-Balanced diet & its components. Nutritional Deficiencies. Understanding of malnutrition and nutritional supplements. Effects of smoking, alcohol, & drugs on health; prevention and rehabilitation.

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- vi) Sports training- its characteristics and principles. Training load, its features, principles and adaptation process. Means and methods of executing training load. Overload, its Causes, and remedial measures. Strengthsymptoms its characteristics, types of strength, factors determining strength development. strength and Endurance its characteristics, types of endurance, factors determining endurance and endurance development. Speed its characteristics, types of Speed, factors determining Speed and speed development. Flexibility-its characteristics, types of flexibility, factors determining flexibility and flexibility development. Coordinative abilities- its characteristics, types of coordinative abilities, factors determining coordinative abilities and development of coordinative abilities. Technique and skill- its characteristics and importance. Different of technique development and technique training. stages Tactics and strategy. Periodization- its importance, objectives and types of periodization. Concept of different periods competition and transitional. Types Preparatory. of Competition: Talent identification- process and procedure.
- vii) Research in physical education- its importance and classification. Ethical issues in research. Methods of research-Descriptive, historical and experimental. Experimental research designs. Identification and formulation of research problem. Types of research hypotheses and their formulation. Tools of research- Questionnaires, opinionnaires, Note taking and critical reading. Sampling Techniques- Probability and non-probability. Data, its types and collecting measures.
- viii Test, measurement and evaluation - their types and importance in physical education and sports. Tests for fitness-Physical fitness, motor fitness, motor ability and motor educability. Test components - strength, for fitness endurance, speed, flexibility and coordinative abilities. Anthropometric Measurements- land marks and measurement of various body segments, height, sitting-height, weight, diameters, circumferences, skinfolds, body mass index, ponderal index. Somatotype and Posture evaluating techniques. Testing of physiological phenomenons- Heart rate, pulse rate & body temperature.
- ix) **Disciplinary Procedures:** CCS(Conduct) Rules, CCS(CCA) Rules, Procedure for disciplinary actions. Essential steps for handling disciplinary cases. CVC Guidelines.

Purchasing: Purchasing Principles GFR-2017.Various

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pharmacyin	913.	purchasing Systems Procurement Portal. P Purchasing. Procurem Payment procedure etc Functions of CAG Audit	etc. GeM Rules and Centr reparation of Budget. Legal a nent of Goods, Services an c. PFMS. CVC Guidelines of Pro- t in Procurement.	al Public aspects of d Works. curement.
		xi) Store Management: Management, Bill of taking/stock verificatio	Contract Management, Materials. Stores Accountir on, Valuation of stock in hand.	Inventory ng. Stock-
pharmacyin	Assistant Librarian	 i) Information Sources an Knowledge organization Information and Commital Information and Commital Information and Commital Information and Its application V) Digital Library Initiative V) Content Creation and Mital V) Information Storage and Vi) Information Storage and Vi) Information Storage and Vii) Indexing. Viii) Content analysis - Abstic Information searching Xi) Information retrieval sis Xii) Research methods/ methods/ methods/ XV) Information and commital XV) Open access scholarly of XV) Information analysis- process and products XVII) Information analysis- process and products XVIII) Planning, management consolidation unit. XIX) Information systems- r special library system at XX) Latest trends in LIS- Lii 	nd Services tion- Classification and C nunication technology ations res- National and International Management ad retrieval tract and abstracting. and media. ystem ethodology and Statistical tech y and Information Centers. unication. rty Rights. communication. rty Rights. consolidation and repackagin at and marketing of an ir management of Academic libra and business information syste brary and Information Science	ataloguing level actin machine g- concept nformation ary system, em.
	610.	All topics related to requi	ired Managerial and comn	nunication
pharmacyli	Assistant Registrar	i) Service Matters: FR & S Rules, TA/DA Rules, M Vigilance, RTI Act, Off Reservation in Service Legal Matters, Foreign S Rules, CCS(Pension) Rul	SR, LTC Rules, Leave Rules, CO edical Attendance Rules, Disc fice Procedure, NIT Act and Rules, etc., DPC, Pay Fixation, Service, Deputation, Labor Lav es, New Pension Scheme.	CS Conduct ciplinary & l Statutes, , Seniority, ws, Service
pharmacyin	dia.co.in	 ii) Financial Administration Elementary knowledge procedures of budgeting iii) Public Procurement: Particles and Procedures Tendering, Procuring, Management, Procurem iv) Noting & Drafting Skills. 	tion: General Financial Rules of Income Tax, GST Rules procurement of Goods and Ser , Central Public Procureme etc., Contract Management, ent Manuals, Import of Goods.	les (GFR), s, Banking vices, GeM ent Portal: Inventory

Technical Assistant (Computer Science & Engineering)

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i)

Mathematics: Arithmetic, Geometric and Harmonic Progressions, Binomial expansion, Matrices, Elementary operations, Rank of a matrix Parabola, Ellipse and Hyperbola, Differentiation of a function, implicit function, parametric function. Successive differentiation. Maxima and Minima, Partial Differentiation, Definite and indefinite Integration. First order and first degree ordinary differential equations. **Physics:** Units and Dimensions with Dimensional analysis and their Limitation, Motion in one and two dimensions and Newton's Laws of Motion. Work and Energy and Conservation Laws of energy, Properties of matter i.e. Elasticity, Surface tension and viscosity in fluent motion, waves and vibration. Characteristics of waves and Simple Harmonic Motion, Rotational Motion, Conservation on angular momentum, Gravitation, Newton's law of gravitation, Kepler's law and Satellite, Heat and temperature. Measurement of temperature and mode of transfer of hear and their laws, geometric optics and simple optical instruments, Simple Law of electrostatics and their use to find the E and potential. Capacitors and dielectric constant, Laser, its principle and use, Superconductivity, Conventional and Non-Conventional energy sources.

ii) Computer Organization and Architecture

Binary representation, registers, Instruction set, timing and control, CPU, instruction cycle, addressing modes, CISC, RISC, synchronization, interrupt and exception, privileged and nonprivileged instruction, hierarchical memory organization, memory mapping, cache memory, coherence, consistency, virtual memory, interleaving, DMA, Signed number, fixed and floating point numbers, control unit design, arithmetic and instruction pipelining: throughput, speedup, branch prediction, hazards

iii) Programming, Data Structures, Algorithms, and Theory of Computation Programming in C, pointers, basic data structures, array, string, stack, queue, recursion, linear and nonlinear data structures, searching and sorting algorithms, complexity and asymptotic analysis, Mealy and Moore machine, finite automata, Determinism and non-determinism, Regular expressions, minimization of deterministic finite automata PDA, regular grammar, CFG, Chomsky's hierarchy, closure properties, pumping lemma, Turing machine, halting problem

iv) Operating System and Database Systems

Basics of Popular Operating Systems (Linux & Windows), File and Directory Management, purpose of database system, Data Models, ER-Model, Introduction to UML, keys, integrity rules, Relational Database design, Normalization, Selection and projection, Joins, SQL: data definition, aggregate function, Null Values, nested sub queries, joined relations, ACID properties, serializability and concurrency control, Lock based concurrency control (2PL, Deadlocks), Time stamping methods

v) **Computer Networks and Web technologies Basic of Computer networks:** LAN, WAN, OSI reference model, TCP/IP, sliding window protocol, Channel allocations problem, Ethernet, Wireless LAN, Broadband Wireless, routing algorithms, Congestion control algorithms, IPv4 and IPv6, Quality of Service, UDP and TCP, Domain name system,

harmacyin	910°	electronic mail, World Wide Web: architectural overview, dynamic web document and http, File Transfer Protocol, Simple Mail Transfer Protocol, Telnet, Concept of Internet, Applications of Internet, Search Engines
X	Technical Assistant (Electrical Engineering)	 Mathematics: Arithmetic, Geometric and Harmonic Progressions, Binomial expansion, Matrices, Elementary operations, Rank of a matrix Parabola, Ellipse and Hyperbola, Differentiation of a function, implicit function, parametric function. Successive differentiation. Maxima and Minima, Partial Differentiation, Definite and indefinite Integration. First order and first degree ordinary differential equations. Physics: Units and Dimensions with Dimensional analysis and their Limitation, Motion in one and two dimensions and Newton's Laws of Motion. Work and Energy and Concernation Laws of
pharmaco	jia.co.in	energy, Properties of matter i.e. Elasticity, Surface tension and viscosity in fluent motion, waves and vibration. Characteristics of waves and Simple Harmonic Motion, Rotational Motion, Conservation on angular momentum, Gravitation, Newton's law of gravitation, Kepler's law and Satellite, Heat and temperature. Measurement of temperature and mode of transfer of hear and their laws, geometric optics and simple optical instruments, Simple Law of electrostatics and their use to find the E and potential. Capacitors and dielectric constant, Laser, its principle and use, Superconductivity, Conventional and Non-Conventional energy sources.
pharmac,	XIQ.CO.II	 ii) Elements of Electrical Engineering: Electrical and Magnetic circuits, EMF, Kirchhoff's law and Faraday's Laws, Network Theorems, AC circuit, RMS value Behavior of RIC elements, Series and parallel circuits, series and parallel resonance circuits, Transformers, Introduction to single phase and three phase transformers DC Machines, Theory, Constructions and Operation of three phase induction motors, Transmission and Distribution Advantages of high voltages for transmission, Comparison of 3 phase, single phase, 2 Phase and three wire D.C. Systems.
pharmacyin	×12.00.11	 iii) Elements of Electronic Engineering: Measurements Instrumentations, Errors, standards, accuracy precision resolution, Ammeters, Voltmeters, watt meters Energy meters, insulation tester, multimeter, CRO, measurement of V, I & F on CRO low, medium & high resistance measurement, AC bridges Transducers for measurement of temperature, displacement, communication system, types of modulation, demodulation, Analog Electronics Semiconductor diode circuits, zener diode and zener diode circuits, LED, photo diode, BJT, FET & their configurations and characteristics Biasing, small signal and Large signal amplifier, OP-AMPS, oscillators, regulated power supply.
pharmacyin		 iv) COMPUTER LITERACY: Characteristics of Computer, Computer Organization, Input/output Devices, Computer Software-Relationship between Hardware and Software, Operating Systems, MS-Office (exposure of Word, Excel/spread sheet, Power point). Digital Signature, Application of information technology in Government for e-Governance,

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<i>;;</i> {	Plo.		mobile/Smartphone, Info	ormation tasks.	in dia.
pharmacy	Technical Assistant (Civil Engineering)	i) phatn	Mathematics: Arithm Progressions, Binomial operations, Rank of a m Differentiation of a fur function. Successive di Partial Differentiation, D order and first degree or Units and Dimensions	etic, Geometric and expansion, Matrices, E atrix Parabola, Ellipse and F nction, implicit function, p ifferentiation. Maxima and efinite and indefinite Integra dinary differential equations with Dimensional analysis	Harmonic lementary Typerbola, barametric Minima, ation. First s. Physics: and their
pharmacyin	jia.co.in	pharm	Limitation, Motion in or Laws of Motion. Work a energy, Properties of ma viscosity in fluent Characteristics of way Rotational Motion, Con Gravitation, Newton's I Satellite, Heat and temp and mode of transfer of and simple optical instr and their use to find the dielectric constant,	ne and two dimensions and and Energy and Conservation atter i.e. Elasticity, Surface te motion, waves and ves and Simple Harmoni nservation on angular m aw of gravitation, Kepler' erature. Measurement of ter thear and their laws, geome ruments, Simple Law of ele the E and potential. Capace Laser, its principle a	Newton's in Laws of ension and vibration. c Motion, omentum, s law and mperature etric optics ctrostatics citors and and use,
oharmacyin	jia.co.in	ii) jiij)	Superconductivity, Conve sources. Computer awareness Applications, viz; MS Wo Internet, MS-DOS, Da applications of computer Surveying: Introduction	entional and Non-Conventio Basic knowledge of Cord, MS Excel, Power Po ata Entry, Softwares known is in civil engineering. A History and principles	of chain
	NR.CO.II	iv)	Compass survey: Instru each included angle of Magnetic declination and prismatic compass.	ment and its setting up, Bea close traverse. Local a lits true bearing. Precaution	aring and ttraction. n in using
oharmacyin		v)	Levelling: Auto level, introduction, definition · its graduation & types. Te procedure in setting up. Benchmark, Focusing & p Level. Types of leveling, Instrument to Building co	dumpy Level, Tilting Principle of levelling. Levelli emporary and permanent adj Level & horizontal surface arallax Deduction of levels / Application to chain and onstruction. Reciprocal level	Level - ing staffs, justment, e. Datum Reduced Levelling ling.
	810.0 ^{.11}	vi)	Contouring: Definition, Indirect methods · Interp Uses of Contour plan and road project. Theodolite survey: Intr	Characteristics, Methods. D oolation of Contour, Contour d Map. Application of conto	irect and gradient, uring for tes. Uses
pharmacyin		viii)	Methods of Plotting. Tr transit theodolite. Fundar of theodolite. Total Station: Introduct used.	tion. Components parts, ac	rerms of justment cessories

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estil	AIS.	ix)	GPS (Global Positionin Definition and applicat	ng System): Introducti ion of Remote sensing.	on of GPS system.	ja.
pharmac		x) phan	Water supply: Intro types of water supply p Type of overhead and equipment's used in terminology and proce	duction. Terms used hipes and fittings. Mate underground water water supply system ess used in Water treat	in PHE. Various rial specification. tanks. Tools and n. Basic concept, ment plant •	
	. The second sec	xi)	Systems of sanitation sanitary fittings, etc. T of plumbing, Type of	1: System of house dra ypes of sewer appur sewage disposals.	ainage, plumbing, tenance, Systems	<u>);</u>
pharmacyin	Technical Assistant (Mechanical Engineering)	i)	Mathematics: Arithmet Binomial expansion, Ma matrix Parabola, Ellips function, implicit fun differentiation. Maxima Definite and indefinite ordinary differential eq with Dimensional analy and two dimensions ar Energy and Conservatio Elasticity, Surface tension and vibration. Character	ic, Geometric and Harn trices, Elementary ope e and Hyperbola, Dif ction, parametric fun a and Minima, Parti Integration. First orde uations. Physics: Unit ysis and their Limitat nd Newton's Laws of n Laws of energy, Prop on and viscosity in flu eristics of waves and	nonic Progressions, erations, Rank of a ferentiation of a nction. Successive al Differentiation, er and first degree ts and Dimensions tion, Motion in one Motion. Work and erties of matter i.e. ent motion, waves I Simple Harmonic	jia.co.
pharmacyin	ja.	onar	Gravitation, Rotational Moti Gravitation, Newton's Satellite, Heat and tem and mode of transfer of and simple optical instr their use to find the E constant, Laser, its p Conventional and Non-O	law of gravitation on ar perature. Measureme of hear and their laws uments, Simple Law of and potential. Capacit orinciple and use, S Conventional energy so	Kepler's law and nt of temperature s, geometric optics f electrostatics and tors and dielectric Superconductivity, purces.	dia.
	ill.	ii)	Computer awaren Applications, viz; MS W MS-DOS, Data Entry, computers in mechanica	ess: Basic knowled ord, MS Excel, Power I Softwares knowledge al engineering.	ge of Computer Point etc. Internet, e, applications of	,ir
active and a second	Ö ^R .	iii)	Automobile Engineeri Classification of autom System, Braking System Emissions.	ng: Automobile and obiles, Transmission 1, Dynamo and Alterna	its development, System, Steering ator and Exhaust	dia.
pharti		iv)	Computer Integrated CNC & DNC, Construct System Devices, Problem system.	Manufacturing: Intr tion and Tooling, Pa ns in CNC Machines, Au	roduction to NC, rt Programming, itomation and NC	
		v)	Engineering Materia Crystallography, Metals and Advanced Materials	als: Scope of Massimilar Scope of Massimilar Scope of Massimilar Massimilar Scope of M	aterial Science, eatment, Plastics	
- jil	, 612. ¹	vi)	Engineering Mechanic Centre of Gravity and Si	c s: Laws of Forces, M imple Machines.	Ioment, Friction,	dia.
harmaci		vii)	Fluid Mechanics: Type its Measurement, Flow of the second secon	and Properties of Flu of Fluids and Flow thro	ids, Pressure and ough Pipes.	
6.		viii)	Heat-Transfer: Modes Steady State Conduction Forced Convection and	s O of Heat Transfer, on, Composite Structu Thermal Radiation.	Fourier's Law, res, Natural and	

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pharmacyin dia.	ix) I.C. Engines: Working cycle, SI engines and cycle, Fuel Supply and System of Diesel Engin IC Engines.	g principle of two stroke and four s CI Engines, Otto cycle, Diesel cycle, d Ignition System in Petrol Engine ne, Cooling and Lubrication and Test	troke Dual , Fuel ing of
.0 [.] ¹⁰	 x) Machine Design: Design of design, Design term factors affecting factor to reduce stress conce Failure, Design of Sha of Flange Coupling and 	ign-Definition, Types of design, nec minology: stress, strain, factor of s r of safety, stress concentration, me entration, fatigue, endurance limit, D aft, Design of Key, Design of Joints, D d Design of Screwed Joints.	essity afety, thods lesign lesign
armacyindia.	xi) Machining and Mach Cutting Materials, Lath Broaching, Jigs and Fiz Welding, Pattern Maki	tine Tool Operations: Cutting Tool ne, Drilling, Boring, Shaping and Plar xtures and Cutting Fluids and Lubri ing, Metal Forming Processes.	s and ning, cants,
Sur	xii) Mechanics of Mater Moment of Inertia, Be Bending Stresses, Col	rials: Stresses and Strains, Resil: ending Moment and Shearing I umns, Torsion and Springs.	ience, Force,
,iff	xiii) Metrology and Inspe Measurement of Surf threads and Gauges.	ection: Linear and Angular Measure face Finish and Measurements of S	ment, Screw
macyindia.co	xiv) Refrigeration and Refrigeration, Vapour Refrigeration System Refrigeration Equipme	air-conditioning: Fundamental • Compression System, Refrigerant n, Vapour Absorption System ent.	s of s, Air and
phan.	xv) Theory of Machines: S Transmission, Flywhe	Simple Mechanisms, Friction, I el, Governor and Balancing.	Power
	xvi) Thermodynamics: For Gases, Thermodynam Thermodynamics, Idea	undamental Concepts, Laws of P nic Processes on Gases, Law Il and Real Gases and Properties of S	erfect s of Steam.
×18-00.11	xvii) Turbo-machinery: Classification of Turbo Condensers, Gas Tur	Introduction to Turbomac omachines, Steam Turbines and S bines and Jet Propulsion	hines, Steam
macyin	xviii) Vibrations: Types-Lo vibrations, Dampenin Machines, their Harm	ongitudinal, Transverse and Tors g of Vibrations, Causes of vibratio ful Effects and Remedies.	sional ons in
Junior Engineer (Civil)	i) Mathematics: Ari Progressions, Binor operations, Rank of a Differentiation of a function. Successive Partial Differentiation First order and first Physics: Units and	thmetic, Geometric and Harr nial expansion, Matrices, Eleme a matrix Parabola, Ellipse and Hyper function, implicit function, paran e differentiation. Maxima and Mi on, Definite and indefinite Integra degree ordinary differential equa Dimensions with Dimensional an	nonic ntary rbola, netric nima, ation. tions. alysis
pharmacyindia.	and their Limitation Newton's Laws of Mo Laws of energy, Pro tension and viscosity Characteristics of Rotational Motion, Gravitation, Newton	a, Motion in one and two dimension otion. Work and Energy and Conserv operties of matter i.e. Elasticity, Su y in fluent motion, waves and vibr waves and Simple Harmonic My Conservation on angular momen i's law of gravitation, Kepler's law	s and vation urface ation. otion, ntum, v and

temperature and mode of transfer of hear and their laws, geometric optics and simple optical instruments, Simple Law of electrostatics and their use to find the E and potential. Capacitors and dielectric constant, Laser, its principle and use, Superconductivity, Conventional and Non-Conventional energy sources.

- ii) Computer awareness: Basic knowledge of Computer Applications, viz; MS Word, MS Excel, Power Point etc. Internet, MS-DOS, Data Entry, Software knowledge, applications of computers in civil engineering.
- iii) **Surveying:** Introduction, History and principles of chain survey. Classification, accuracy, types of chains and tapes. Direct and Indirect ranging.
- iii) **Compass survey:** Instrument and its setting up, Bearing and each included angle of close traverse. Local attraction. Magnetic declination and its true bearing. Precaution in using prismatic compass.
- iv) Levelling: Auto level, dumpy Level, Tilting Level introduction, definition · Principle of levelling. Levelling staffs, its graduation & types. Temporary and permanent adjustment, procedure in setting up. Level & horizontal surface. Datum Benchmark, Focusing & parallax Deduction of levels / Reduced Level. Types of leveling, Application to chain and Levelling Instrument to Building construction. Reciprocal levelling.

vi) **Contouring:** Definition, Characteristics, Methods. Direct and Indirect methods · Interpolation of Contour, Contour gradient, Uses of Contour plan and Map. Application of contouring for road project.

- vii) **Theodolite survey:** Introduction. Types of theodolite. Uses, Methods of Plotting. Transit vernier theodolite. Terms of transit theodolite. Fundamental line of theodolite. Adjustment of theodolite.
- viii) **Total Station:** Introduction. Components parts, accessories used.
- ix) **GPS (Global Positioning System):** Introduction of GPS system. Definition and application of Remote sensing.
 - **Water supply:** Introduction. Terms used in PHE. Various types of water supply pipes and fittings. Material specification. Type of overhead and underground water tanks. Tools and equipment's used in water supply system. Basic concept, terminology and process used in Water treatment plant.
- xi) **Systems of sanitation**: System of house drainage, plumbing, sanitary fittings, etc. Types of sewer appurtenance, Systems of plumbing. Type of sewage disposals.

Library &
 i) Library and Society: Laws of Library Science: Types of Librarian
 Assistant
 i) Library Movement and Library Legislation in India; Organizations and Institutions involved in the development of Library and Information Services – UNESCO, IFLA, FID, INIS, NISSAT, etc.

ii) **Library Management**: Collection development – Types of Documents and Selection Principles, Acquisition Procedure,

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pharmacyin	Я¢.	phath	Acquisition of Documents for Library Rules Principles of D Structure; Use Maintenance, Preservation,	of Journals a r use; Library and Regulatic Library Manage and Mainten Shelving, St Weeding out, o	nd Periodicals, Personnel and Li ons; Library Fin ement, Library ance of the Libr cock Verificatio	Preparation brary Committ ance and Budg Organisation a ary – Circulation on, Binding a	of ee, et; nd on, ind
		iii)	Library Clas Principles, Lib	sification The	eory and Praction Schemes– I	t ice : Canons a DDC, CC, UDC;	nd
	11.00	iv)	Library Cata Principles; Lib	loguing The orary Catalogu	ory and Pract	ice : Canons a and AACR.	nd
pharmacyin	ia.	v)	Reference and Reference Sources Dictionaries Sources of I Documentary, Journals, etc.;	nd Information arces – Types o , Encyclopedia nformation , Non-Docume	i on Sources : H f Bibliography; H is, Ready Refere Primary, Seco ntary; E-Docum	Bibliography a Reference Sources, e once Sources, e ondary, Tertia ents, E-Books,	nd ces tc.; iry, E-
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