Annexure-'A' to the notification no. (1)
10 – PSC (DR-P) of 2022 dated 26 -04-2022.

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SYLLABUS FOR THE POSTS OF
ASSISTANT DIRECTOR (TECHNICAL) AND DISTRICT COORDINTOR (TECHNICAL)

COMPUTER SCIENCE
10 MARKS

Functioning of Computer, Classification of Computer, Components of Computer, Computer Hardware, CPU, Memory Unit, Storage Devices, Input Devices, Output Devices, MODEM and its working, Number System, Decimal Number System, Binary Number System, Octal Number System and Hexadecimal Number System, Digital Codes, Code Conversion, Logic Gate Symbol Identification, Network Media- Guided (Twisted pair, Co-axial Fibre Optics), Un-Guided (Infrared, Radio, Microwave) Network Devise HUB, MODEM, Repeater, Gateway, Switch and their functions Network Technologies- Ethernet Bluetooth, Wi-Fi.

MATHEMATICS AND STATISTICS
10 MARKS

Mixture Problems, Simplification, Average, Percentage, Ratio and Proportion, Number System, Algebra, Profit and Loss, Interest, Speed Time and Distance, Time and Work, Mensuration, Geometry, Trigonometry, Number Series, Permutation and Combination, Tabulation, Bar Graph, Line Graph, Pie Chart, Venn Diagrams, Probability, Number Series, Clock and Calendar, Mathematical Puzzles, Syllogism, Direction and Distance, Analytical Geometry, Equation of Line, Slopes, Matrices and Determinants, Matrices and determinants, Definition of a matrix, various types of matrices, Addition and multiplications of matrices. Transpose of a matrix and its properties. Mean, Median, Mode, Standard Deviation, Mean Deviation, Correlation and Regression, X2 Test, T Test.

PHYSICS
10 MARKS

System of Units, SI Units, SI System, Fundamental and Derived Units, Practical Units, Wave Motion, Types of Wave Motion, Musical Sound and Noise, Pitch, Loudness, Quality of Sound, Beats, Lasers, Types of lasers and application of lasers, Coulomb's Law, Electric Field, Intensity of electric Field, capacitors and capacitance, combination of capacitors in series and in parallel capacitance, Kirchhoff's Laws, Kirchhoff's Current Law, Kirchhoff's Voltage Law, Direct Current, Alternating Current, Magnetism, Molecular Theory of Magnetism, Right Hand Rule, Left Hand Rule, Helix Rule, Cells, Primary cells, Secondary Cells, Battery, Parallel Group of Batteries, Mixed Group of Batteries, Capacity of a Battery, Efficiency of Battery, Charging of Battery, Electrical resistivity and conductivity, carbon resistors, color code for carbon resistors, thermistors, piezo discs.

CHEMISTRY
10 MARKS

Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous solids and crystalline solids (elementary idea only). unit cell in two dimensional & three dimensional lattices, packing efficiency, calculation of density of unit cell. packing in solids, voids, number of atoms per unit cell in a cubic unit cell point defects. Properties of solids (electrical, magnetic & dielectric), Band theory of metals, conductors, semi-conductors and insulators and n & p type semiconductors, Types of solutions, expression of concentration of solution of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties relative lowering of vapor pressure of a solution, Raoult's law, elevation of boiling point, depression in freezing point temperature and osmotic pressure), determination of molecular masses using colligative properties Abnormal molecular mass, van't Hoff factor and calculations involving it, Redox reactions, conductance in electrolytic solutions, specific conductivity. Molarconductivity, variation of conductivity with concentration.

BOTANY
10 MARKS

Heredity and variation, Mendelian inheritance, Deviations from Mendelism: incomplete dominance, co-dominance, Multiple alleles. Pleiotropy Chromosomal theory of inheritance, Elementary idea of polygenic inheritance, Chromosomes & genes, Search for genetic material DNA genetic material Structure of DNA & RNA. DNA packaging. DNA Replication (Semiconservative), Central dogma, Protein Biosynthesis Transcription, translation, genetic code Gene expression and regulation (lac-operon), Plant breeding: introduction, steps in plant breeding and application of plant breeding and single cell protein, Biofortification, Tissue culture: Cellular totipotency, technique and application of tissue culture, Microbes in Human Welfare: in household food processing, industrial production, sewage treatment Production of energy (Biogas), biocontrol agent (Biopesticides) & Biofertilizers, Genetically Modified organism- Bt crops, Biopiracy and patents, Meaning of ecology, environment, habitat and niche: Organist and environment

ZOOLOGY
10 MARKS

Asexual Reproduction: Uniparental, modes: binary fission, sporulation, budding, gemmule, fragmentation, regeneration.Human Reproduction- Male and female reproductive systems. Microscopic anatomy of testis & ovary Gametogenesis (spermatogenesis & oogenesis Menstrual cycle), Fertilization, embryo development upto blastocyst formation, implantation, Pregnancy and placenta formation (elementary idea). Parturition (elementary idea) and Lactation (elementary idea).Reproductive Health: Need for reproductive health & prevention of Sexually Transmitted Diseases (STD), Binh control- need & methods, Contraception and Medical Termination of Pregnancy (MTP), Amniocentesis, Infertility & assisted reproductive technologies: IVE.GIFT (Elementary idea for general awareness), Sex determination in human hits and honeybee, Inheritance pattern of Hemophilia and Color blindness in human beings, Mendelin Disorders in humans: Chromosomal disorders in humans, Down's syndrome, Turner's & Klinefelter's syndromes, Genome and Human Genome project, DNA fingerprinting, Origin of life Theories & evidences with special reference to Darwin &

Modern Synthetic theory of evolution, Hardy - Weinberg's principal Adaptive radiation. Origin and evolution of Man.

PROFESSIONAL COMMUNICATION
10 MARKS

Error Spotting- Grammar, Active and passive Voice, Direct and Indirect Speech, Fillers, Common Errors, fill in the blanks (Vocabulary), vocabulary, spellings, grammar, sentence jumbles, para jumbles, synonyms, antonyms, one word substitution, sentence completion, phrase replacement, Phrase or Idiom Meaning.

ENGINEERING TOPICS
10 MARKS

Introduction to electrical and electronic measurements, errors in measurement, galvanometer, voltmeter, ammeter, accuracy, precision, permanent magnet moving coil, electrodynamometer type instrument, measurement of resistance, measurement of self-inductance, measurement of capacitance, sensors and transducers, Digital electronicvoltmeter, CRO, measurement of high AC voltages, Materials and Components, Atoms and Solids, Dielectric Properties of Insulating Materials, Magnetic Properties of Materials, Conductivity of Metals, Conduction in Semiconductors, Insulators, Optical Materials, Communication systems, modulation, analog modulation, Frequency Modulation, Frequency Division Multiplexing, Digital Communication Systems, Sampling, Time Division Multiplexing, Delta Modulation, Demodulation, Satellite Communication, Analog Circuits, DC Biasing BJT's, Fixed Bias Circuit, Transistor Saturation , Power Amplifiers, Feedback and Oscillator Circuits, Operational Amplifiers, Applications of Op-AMP, JFET, MOSFET, Power Systems, Electric Power Generation, Transmission Line Parameters, Performance of Overhead Transmission Lines, Cables, Grading of Cables, Corona Losses,

Faults, Types of Faults, Circuit Breakers, Relays, Types of Relays, Earthing, , Insulation Material.

DESIGN AND INNOVATION
20 MARKS

CAD designing, CAD Designing software, Features of CAD software, File types in CAD, Menu features in CAD software, Autodesk Inventor Software, File Types in Inventor,2D Sketching, 3D Sketching, 3D Printing, Additive Printing, Types of Additive Printing, Subtractive Printing, Metal Fusion Techniques for 3D Printing,Fused Deposition Modeling (FDM), Types of Materials in FDM, Properties of PLA, Properties of ABS, Properties of PET, Properties of PETG, Properties of TPU, Properties of PC, Properties of Nylon, Properties of ASA, Properties of ULTEM,Slicer Software, Files types in Slicer Software, Arduino, Arduino UNO, Arduino Mega, Arduino Nano, Arduino UNO PIN layout, Arduino Mega PIN layout, Arduino Nano PIN layout, Arduino Programming,Laser Engraving Techniques, Laser Engravers, Types of Lasers, Printed Circuit Board (PCB) Designing, Types of PCB materials, Multi-Layer PCB's, PCB Component Footprints, Footprint codes of Basic through hole Components, Footprint codes of SMA/SMD components, Capacitors, Inductors, Resistors, Color Coding of Carbon resistors, Coding of Capacitors, Electronic Sensors and Transducers, Servo Motors, Stepper Motors, Sensor IC's, Innovation in Mobile Phone Technology, Innovation in Led TV's, Latest Innovation in Consumer Products, Innovation in Medical Technology, SSD's, NVME Storage Devices, Relays, Switches , Types of Switches, Connectors, types of Connectors, Oscillators, Types of Oscillators Using Transistor, Crystal Oscillator, Application of Oscillators, Optoelectronic devices, 555 Timer, regulated Power supply, Power Supply IC's, Identification of Electronic and Electrical Symbols, Identification of IC"s by Visualization, Identification of Electronic Active & Passive Components by Visualization, Types and Kinds of Electronic Measurement Tools,Digital Electrical Watt Meter Design, Regulated Power Supply Design, Design of Voltage Stabilizers, Voltage Regulation, Design using IC Voltage Regulators, Designing Circuit using Circuit Simulation Tools, Multisim Simulation, Diptrace PCB designer, Product Designing, Concept Generation, Concept Selection, Concept Testing, Development Process, Product Planning, Identifying Customer/ Consumer Needs, Product Specifications, Product

Architecture, Industrial Design, Design For Manufacturing, Prototyping, General Knowledge Questions Related to Latest Innovations in the World.