

प्रदेश लोक सेवा आयोग, मधेश प्रदेश
स्वास्थ्य सेवा, विविध समूह, सहायक पाँचौ तह, बायोमेडिकल टेक्निसियन पदको खुला तथा अन्तर सेवा प्रतियोगितात्मक परीक्षाको
पाठ्यक्रम

द्वितीय पत्र (Paper II) :-

सेवा सम्बन्धित कार्य-ज्ञान (Job based-knowledge)

खण्ड (Section) (A):- ५० अङ्क

1. Human Physiology and Biomedical Instrumentation
 - 1.1 Introduction to Basic Physiology: nervous system, respiratory system, circulatory system, digestive system and excretory system
 - 1.2 Physiological Signals Monitoring :ECG, EMG, EEG, Pulse Oxymeter, Temperature Meter and Blood Pressure Meter
 - 1.3 Labour and Delivery: foetal heart monitoring, infant warmer and phototherapy
 - 1.4 Dental Clinic and Laboratory: suction pressure unit, suction machine and dental chair
 - 1.5 Physical Therapy: Diathermy, Hydrotherapy, Traction & TMT unit
 - 1.6 ENT: Audiometers, Tympanometers, ENT microscope, ENT Drill and Autoscope
 - 1.7 Imaging Systems
 - 1.7.3 X-ray: introduction and working principle
 - 1.7.4 General introduction to MRI and CT
 - 1.8 Hospital Gas Supply
 - 1.8.3 Medical Gas: introduction and classification
 - 1.8.4 Oxygen Concentrator: introduction and working
 - 1.9 Dialysis: General introduction and working principle
 - 1.10 Basic Laboratory Equipments: introduction and working principle (water bath, hot air oven and autoclave)
 - 1.11 OT Light
2. Biomedical Chemistry
 - 2.1 Electrochemistry
 - 2.1.1 Introduction and range of electrochemical techniques
 - 2.1.2 Classification of electrochemical techniques: potentiometry and Voltammetry
 - 2.2 Organic Chemistry: introduction, classification and general uses of organic compounds
 - 2.3 Carbohydrates, Proteins and Lipids: definition, classification and properties
 - 2.4 Instrumental methods for analysis of biologically important substance: Electrophoresis, Chromatographic, Mass spectrometric, Centrifugation, Filtration and Colorimetric techniques
 - 2.5 Acid-Base Chemistry
 - 2.5.1 pH, buffer and buffer systems
 - 2.5.2 Electrolysis and water dissociation
3. Maintenance and Repair for Biomedical Devices
 - 3.1 Working Tools and Testing Equipment's: General Handling Tools, Oscilloscopes and Multimeters
 - 3.2 Electrical Safety Inspections
 - 3.3 General Equipment Maintenance: Blood pressure machine, Suction machine, Stethoscope Syringe and Infusion pump

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खण्ड (Section) (B):- ५० अङ्क

4. Electronic Principles and Practices

- 4.1 Circuit Parameters: introduction.
- 4.2 AC and DC circuits: introduction and analysis
- 4.3 Transistors: introduction and classification (BJT, JFET, MOSFET)
- 4.4 Power Supplies, Voltage Regulators and IC Regulators
 - 4.4.1 Introduction and characteristics
 - 4.4.2 Rectifiers, filters, voltage regulation and switching regulation
- 4.5 Amplifiers
 - 4.5.1 Introduction, characteristics, ideal amplifier and differential amplifier
 - 4.5.2 Operational Amplifier: introduction, characteristics and application
- 4.6 Optoelectronic Components
 - 4.6.1 General introduction
 - 4.6.2 Photoconductive cells, Photodiodes, Phototransistors, Solar cells, Light activated SCR, Light Emitted Diodes (LEDs), Optocouplers and Liquid Crystal Displays (LCD)

5. Digital Electronics and Microprocessors

- 5.1 Fundamental of Digital Electronics
 - 5.1.1 Transistor: application as switch and relay
 - 5.1.2 Logic Gates: truth tables and Boolean expressions
 - 5.1.3 Universal gates and gate conversion
 - 5.1.4 DE Morgan's theorem
- 5.2 Combinational Logic Devices
 - 5.2.1 Encoder and Decoder
 - 5.2.2 Multiplexer and DE multiplexer
 - 5.2.3 Half and Full: Adder and Subtractor
- 5.3 Sequential Logic Devices
 - 5.3.1 Counters: types and characteristics
 - 5.3.2 Registers: SISO, SIPO, PISO, PIPO
 - 5.3.3 Digital clocks and frequency counter
- 5.4 Introduction and characteristics of analog to digital or digital to analog conversion
- 5.5 Fundamentals of microprocessor, introduction and architecture of 8085 microprocessor

6. Computer Skills

- 6.1 Introduction to computer
- 6.2 Input, output and memory devices
- 6.3 Internet and information resources
- 6.4 Networking concepts

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7. Record keeping and Technical Writing
 - 7.1 Introduction to record keeping and technical writing
 - 7.2 Creating forms, memos, letters and daily reports
 - 7.3 Computerized inventory and maintenance report
8. Patient and Hospital Environment
 - 8.1 Procurement procedures
 - 8.2 Biomedical waste management

द्वितीय पत्रको लागि यथासम्भव निम्नानुसार प्रश्नहरू सोधिनेछ ।

द्वितीय पत्र (विषयगत)					
पत्र	विषय	खण्ड	अङ्कभार	छोटो उत्तर	लामो उत्तर
द्वितीय	सेवा सम्बन्धित कार्य-ज्ञान (Job Based-Knowledge)	(A)	५०	६ प्रश्न × ५ अङ्क = ३०	२ प्रश्न × १० अङ्क = २०
		(B)	५०	६ प्रश्न × ५ अङ्क = ३०	२ प्रश्न × १० अङ्क = २०