22232

3 Hours / 70 Marks   Seat No.

Instructions :   (1)   All Questions are *compulsory.*

(2)   Answer each next main Question on a new page.

(3)   Illustrate your answers with neat sketches wherever necessary.

(4)   Figures to the right indicate full marks.

(5)   Assume suitable data, if necessary.

(6)   Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any FIVE of the following :**   **5 × 2 = 10**

(a)   Write any two functions of kidney.

(b)   Write functions of the following :

(i)   SA node

(ii)   Medulla oblongata

(c)   Draw the block diagram of MAN Instrument system.

(d)   Define electrode with circuit diagram.

(e)   Define :

(i)   Micro shock

(ii)   Macro shock

(f)   State any one application of

(i)   X-ray machine

(ii)   Ultrasonography

(g)   Write normal ranges for blood pressure measurement in human body.

2. Attempt any THREE of the following : **3 × 4 = 12**

(a) Describe working of Central Nervous System (CNS) with labelled diagram.

(b) Draw block diagram for EMG machine & explain working of each block.

(c) Explain working of electromagnetic type blood flow technique with neat labelled diagram.

(d) Explain D.C. defibrillator with diagram.

3. Attempt any THREE of the following : **3 × 4 = 12**

(a) Explain physiological structure & working of respiratory system with labelled diagram.

(b) Explain working of ECG machine with block diagram.

(c) Define the following terms with respect to lung volume & capacities :

    (i) Tidal Volume. (TV)

    (ii) Inspiratory Reserve Volume. (IRV)

    (iii) Expiratory Reserve Volume. (ERV)

    (iv) Total Lung Capacity. (TLC)

(d) Discuss principle of operation of Plethismograph.

4. Attempt any THREE of the following : **3 × 4 = 12**

(a) Draw labelled diagram for internal structure of Heart.

(b) Describe Action potential with the nelp of neat labelled diagram.

(c) Explain working of spirometer with neat labelled diagram.

(d) State four precautions to be taken to minimize electric shock hazards & leakage current.

(e) Explain working of CAT (CT Scan) with block diagram.

5. Attempt any TWO of the following : **2 × 6 = 12**

(a) Describe the operation of kidney with labelled diagram.

(b) Draw block diagram of EEG machine & explain each block.

(c) Explain working of X-ray machine with block diagram.

6. Attempt any TWO of the following : **2 × 6 = 12**

(a) Explain working of sphygmomanometer with the help of diagram.

(b) Draw the block diagram of MRI and explain each block.

(c) Draw block diagram of different pacing modes & explain each mode.

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