This question paper contains 3 printed pages]

HPAS (Main)—2017

MEDICAL SCIENCES

Paper I

Time : 3 Hours

Maximum Marks : 100

Note :— Answer any five questions including Q. No. 1 which is compulsory.

1. (a) Describe with the help of a diagram the vascular supply of heart. Explain the concept of cardiac dominance. Write a short note on Patent Ductus Arteriosus (PDA).

   (b) Explain the process of neuromuscular impulse transmission and generation of action potential with diagram. \(10 \times 2 = 20\)

2. (a) What is Kreb's cycle and the process of oxidative phosphorylation?

   (b) Describe the course and tributaries of the thoracic duct. What is the function of cisterna chyli? Write a note on Virchow's node. \(10 \times 2 = 20\)

P.T.O.
3. (a) What is oxygen Hb dissociation curve? Describe the effects of:

(i) pH

(ii) 2, 3 BPG and

(iii) temperature on oxygen Hb dissociation curve

(b) Describe the structure of bacterial cell wall with functions of each component. 10×2=20

4. (a) Asphyxia. Classify types of asphyxia. Explain the post mortem findings of hanging versus strangulation.

(b) Write short notes on:

(a) complementation

(b) gene-reactivation

(c) recombination with examples 10×2=20

5. Difference between police inquest and magistrate inquest? What are the medicolegal scenarios where magistrate inquest is required? What is the significance of dying declaration? 20
6. (a) What is the difference between 

(a) apoptosis and necrosis

(b) liquefactive and coagulative necrosis

(b) Write a note on Transplantation of Human Organs Act (THOA). 10x2=20

7. (a) Explain the steps of metastasis of cancer cells. What are various types of metastasis ?

(b) What are antibiotics ? Give classification and mechanism of action of penicillins. 10x2=20

8. (a) Give classification of antiepileptic drugs with respect to mechanism of action. Write a short note on phenytoin.

(b) What are the factors influencing taste sensation and discuss various abnormalities of taste sensation ? 10x2=20