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**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. 10×2=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. 10×2=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.  $10 \times 2 = 20$
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  $10 \times 2 = 20$
5. Difference between police inquest and magistrate inquest ? What are the medicolegal scenarios where magistrate inquest is required ? What is the significance of dying delcaration ?

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). 10×2=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. 10×2=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 ? 10×2=20