

2008

**HUMAN PHYSIOLOGY**

PAPER— XIII

*Full Marks : 40*

*Time : 2 hours*

*The figures in the right-hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

**Write the answers Questions of each Unit  
in separate books**

UNIT—25

Answer any *two* questions

1. What is Nernst potential? How can you deduce Nernst equation from the diffusion process in the membrane? What is Goldman equation? 2 + 6 + 2
2. What is dipole? Discuss the dipole hypothesis to explain the generation of electrocardiographic potential. How can you calculate the potential in a point within the dipole field? 1 + 7 + 2

(Turn Over)

3. What is the source of EEG potential? Discuss the mechanism of generation of rhythmic EEG. What EEG pattern is found during psychomotor disorder? 2 + 6 + 2
4. Write brief notes on the following: 10
- (i) Mean QRS vector
- (ii) Compound action potential.

UNIT—26

Write any *two* of the following

1. (a) What is transducin?
- (b) Discuss the molecular mechanism of transduction process in photoreceptor cells in the retina. 3 + 7
2. (a) Mention the localization and innervation of gustatory receptors.
- (b) Discuss the significance of primary and secondary sensory area in the cerebral cortex with reference to taste pathway. (2 + 2) + (3 + 3)

3. (a) Discuss the structural peculiarities of olfactory epithelium.
- (b) What is Olfactory Bulb ?
- (c) Give a brief account of the functioning of Olfactory Receptors. 4 + 2 + 4
4. (a) What is Generalized Interpretative Area ? What is its significance ?
- (b) What is referred pain ?
- (c) Describe the role of CNS in the modulation of pain sensation.  $(2\frac{1}{2} + 2\frac{1}{2}) + (1 + 4)$
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