

**2020**

**PHYSIOLOGY — HONOURS**

**Paper : CC-11**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

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

**Group - A**

1. Answer **any five** questions : 2×5
- (a) What are positive and negative after images?
  - (b) State the clinical significance of Jerry-Porter Law.
  - (c) Who are trichromats?
  - (d) Distinguish between anosmia and hyposmia.
  - (e) Which areas in Paleocortex and neocortex are responsible for perception of odoriferous sensation?
  - (f) State the role of middle ear muscles in attenuation reflex.
  - (g) Differentiate between photopic and scotopic vision.
  - (h) What is after taste? Give a suitable example.

**Group - B**

2. Answer **any two** questions from the following :
- (a) Write short notes on (**any two**) : 2½×2
    - (i) Power Law
    - (ii) Conductive deafness
    - (iii) Argyll-Robertson Pupil.
  - (b) Why olfaction is known as a 'special' sensation? Justify your answer. 5
  - (c) Discuss location and functions of the following (**any two**) : 2½×2
    - (i) Nucleus Tractus Solitarius
    - (ii) Amacrine Cells
    - (iii) Deiter's Cells.
  - (d) Describe briefly the role of lateral superior olivary nucleus in localization of a sound source in space, with appropriate diagram. 5

**Please Turn Over**

**Group - C**

3. Answer **any three** questions from the following :

- (a) (i) Why do the Photoreceptors remain depolarized in darkness?  
(ii) How do the ON-Bipolar cells become active in response to illumination? 5+5
- (b) (i) Discuss the single-opponent and double opponent mechanism of colour vision.  
(ii) Which mechanism does appear to be superior and why so? 3+(5+2)
- (c) (i) How are the travelling waves set up in the inner ear?  
(ii) Distinguish between outer and inner hair cells of cochlea.  
(iii) Which type of hair cells can act as the true auditory receptors and why?  
(iv) State the function of Eustachian Tube? 3+3+3+1
- (d) (i) What is meant by umami sensation?  
(ii) Describe briefly the signal transduction processes of sweet and bitter taste sensation.  
(iii) Draw a labelled diagram of brain showing the localization of taste centres. 1+(3+3)+3
- (e) (i) Describe diagrammatically neural circuitry in olfactory bulb.  
(ii) State briefly the neurophysiological basis of olfactory coding. (2+4)+4
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