M.Sc. 3rd Semester Examination, 2023

PHYSIOLOGY

(*Human Physiology*)

PAPER – PHY-301.1 & 301.2

Full Marks : 50

Time : 2 hours

Answer **all** questions

The figures in the right hand margin indicate marks

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

PAPER – PHY-301.1

[Marks : 20]

A . Answer any *two* questions from the following : 2×2

1. Write the functions of mitral and tuft cells present in the olfactory epithelium. $1 + 1$

2. "Eustachian tube acts as an equalizer during sound transmission" – Briefly justify the statement. 2

3. Write down the compositional differences between perilymph and endolymph. 2

4. Mention the factors which can prolong the QRS complex in ECG ? 2

B. Answer any *two* questions from the following : 4×2

5. "Cochlea play an important role as amplifier for sound transmission" – Explain it. 4

6. Discuss the cellular and molecular basis of odor adaptation. 4

7. Briefly describe the Stokes-Adams Syndrome ? Draw the Einthoven's triangle, mentioning the limb leads. 3 + 1

8. What does the "Mean Electrical Axis of the ventricles" mean ? Briefly describe the conditions in which this axis may be shifted. 1 + 3

C. Answer any *one* question from the following : 8 × 1

9. What is short term olfactory adaptation ? Discuss the mechanism of short term olfactory adaptation in man. Discuss the neural basis of discrimination of different odors. 1 + 3 + 4

10. Briefly describe the mechanics of cochlea in the light of travelling wave theory. What is frequency theory of sound transmission. Mention the special features of centriole of cochlear hair cells. 2 + 4 + 2

PAPER – PHY-301.2

[Marks : 20]

A. Answer any *two* questions from the following : 2×2

1. What is metarteriole ? Write down its importance. $1 + 1$

2. What is meant by baroreceptor reflex ? 2

3. What is transcapillary exchange ? 2

4. What are mucolytics ? Give example. $1 + 1$

B. Answer any *two* questions from the following : 4×2

5. What are the causes of cystic fibrosis ? 4

6. Write down the role of parasympathetic and sympathetic nervous system in the regulation of heart rate. 4

7. State the importance of peripheral and central chemoreceptors in cardiovascular regulation. 2 + 2

8. Mention the significance of FEV_1/FVC ratio. How do we diagnose restrictive lung disease with this ratio ? 2 + 2

C. Answer any *one* question from the following : 8×1

9. Describe the role of endothelin-1 as a vasoactive substance mentioning its cardiovascular function and regulation of secretion. Give a brief concept of capillary filtration. (2 + 2 + 2) + 2

10. What is mucociliary clearance system ? Define ciliary dyskinesia. What are the respiratory symptoms of primary ciliary Dyskinesia ? 2 + 2 + 4

[Internal Assessment – 10 Marks]