

M. Sc. 4th Semester Examination, 2024

HUMAN PHYSIOLOGY

PAPER — PHY-401.1&401.2

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-401.1

(Endocrinology)

[Marks : 20]

GROUP—A

Answer any two questions from the following :

2 × 2

(Turn Over)

1. Mention any three general features of nuclear receptor ligands. 2
2. What is TTR ? Mention its function. 1 + 1
3. What is CASR ? 2
4. What is glucose fever ? 2

GROUP – B

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

5. How are the “ligand binding” process of nuclear receptor’ executed ? 4
6. Briefly describe the steroidogenesis in adrenal cortex. Mention the symptoms of cushing’s syndrom. 3 + 1
7. State the actions of parathyroid hormone on bone with special emphasis on the interplay of different types of bone cells. 4
8. Briefly discuss the role of adrenal gland for maintaining the stressor response. 4

GROUP— C

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

9. Describe the synthesis of TRH showing the structural organization of TRH gene with suitable diagram. State the pituitary mediated functions of TRH. 4 + 4
10. Describe the mechanism of action of T3/T4 after cellular uptake and intracellular binding. Write down the treatment protocol of goitre with medicine. How thyroglobulin endocytosis is responsible for hormone storage of T3/T4 ? 3 + 2 + 3

PAPER — PHY-401.2

(*Reproductive Physiology*)

[Marks : 20]

GROUP—A

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

11. Briefly mention the causes of ectopic pregnancy. 2
12. What is meant by bipotential gonad ? 2
13. Write down briefly on the risk factors of endometriosis. Mention its treatment protocol. 1 + 1
14. Mention the two genetic risks of oxidative stress in male. 2

GROUP— B

Answer any **two** of the following questions :

4 × 2

15. Briefly explain the cellular mechanism of breast cancer treatment with melatonin. Describe the synthesis of steroids at the fetoplacental unit. 2 + 2
16. Write down a note on Klinefelter syndrome. How does oxidative stress produce sperm apoptosis in male reproductive system ? 2 + 2

17. With a neat labelled diagram describe the pathway of melatonin synthesis in human pineal gland. What is chorio-careinoma ? 3 + 1
18. Briefly describe the mechanism of action of combined and progesterone-only hormonal contraceptives. 2 + 2

GROUP— C

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

19. With a suitable diagram briefly describe the formation of heart loop from bulbo-ventricular ridge during embryonic life. Classify several growth factors responsible for complete growth and development of fetus. Discuss briefly the role of prostaglandin & oxytocin in parturition. 3 + 2 + 3

20. Write down critically the role of different transcription factors in the regulation of testis development. State the different steps of spermatogenesis with special reference to spermatid differentiation.

[Internal Assessment — 10 Marks]
