

Human Physiology

[P.G.]

M.Sc. Fourth Semester End Examination-2024

[Regular and Supplementary Paper]

PAPER: 401

Full Marks: 40

Time: 02 Hr

The figures in the right hand margin indicate marks.

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

Illustrate the answers wherever necessary.

[Use separate answer script for each unit]

Unit – 33

[Yoga and stress Physiology]

Marks 20

- 1. Answer any two questions from the following: 2x2= 4**
- a. Write about the two beneficial effects of yoga on stress related changes.
 - b. What do you mean by oxidative stress?
 - c. Define acclimatization.
 - d. What are micro-contaminants?

(2)

2. Answer any two questions from the following: 2x4= 8

a. Explain about the medical emergencies that occurs during spaceflight. 4

b. State the role of catalase in prevention of stress. What is SOD? Mention its function. 2+2

c. How does stress affect the neuroendocrine system? 4

d. Write about the applications of micro-organisms in space. 4

3. Answer any one question from the following: 1x8= 8

a. i) Explain the effect of acute and chronic stress on immune system.

ii) How microgravity affects the cell growth and pathogenicity of the microorganisms? 5+3

b. i) Explain about the different types of yoga and mention their physiological importance.

ii) Briefly discuss the effects of micro gravity on the cardiovascular system. 5+3

Unit - 34

[Modern techniques in physiology]

Marks 20

1. Answer any two questions from the following: 2x2= 4

a. Write down the principle of ion-exchange chromatography. Mention the name of any one cation-exchanger used in ion-exchange chromatography. 1+1

(3)

b. What is an allotrope? Give example. 1+1

c. Define 'Biomorph'.

d. Explain the concept of epigenomics.

2. Answer any two questions from the following: 2x4= 8

a. Mention the instrumentation parts of on FTIR. How does it work? 1+3

b. Write down the principle of STM technique with a proper diagram. 3+1

c. What are the major differences between genomics and proteomics data analysis? 4

d. What are "surface Plasmon Resonance (SPR) biosensor" and "Nano biosensor"? 2+2

3. Answer any one question from the following: 1x8= 8

a. How PCR is responsible for gene expression studies? Describe the working principle of gel-filtration chromatography. 3+1+4

b. Discuss how nano-technology can be applied in cancer diagnosis and treatment. Briefly describe the scientific steps in proteomic study. 5+3
