

2022

**Human Physiology**

[P.G.]

**(M.Sc. First Semester End Examination-2022)**

**PAPER-101**

**Full Marks:40**

**Time: 02 Hrs**

*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*

**Unit – 1**

**Marks 20**

**[System Physiology]**

- 1. Answer any two questions of the following: 2x2= 4**
- a) How could you differentiate between oncogenes and tumor suppressor genes? 2
  - b) How does expression of cell cyclins vary with different phases of cell cycles? 2
  - c) What is Starling's Law of Heart? 2
  - d) Explain "Exercise is related to cardiac output" with special reference to venous return? 2

(2)

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

- a) Briefly explain the role of nitric oxide as an intercellular messenger. 4
- b) Write a brief note on tubulo glomerular feedback mechanism. 4
- c) Write briefly on Immune functions of GI Tract? 4
- d) Why lungs are called secondary lymphoid tissue? 4

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

- a) i) Explain how does calcium act as an intracellular messenger.  
ii) Write briefly on the non-excretory functions of kidney.
- b) i) Write down the evolutionary developmental steps of human heart..  
ii) Discuss in brief the role of baroreceptors in regulation of cardiovascular systems. 5+3

Unit – 2

Marks 20

[Physiological Chemistry and Metabolism]

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

- a) What are chaperone proteins? 2
- b) Name two information molecules. 2
- c) State the functions of peroxisomes. 2
- d) What is activation energy in relation to enzyme activity? 2

(3)

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

- a) Differentiate between oxidativen phosphorylation and substrate level phosphorylation. 4
- b) Explain the process of enzyme regulation by induction with special emphasis on lac operon. 4
- c) Describe the significance of Ramachandran plot. What are phi & Psi angles? 3+1
- d) Enumerate the post-translational modifications of proteins. 4

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

- a) Describe the process of heme synthesis with a flow chart. 6+2
- b) Explain the vesicular transport of the proteins with a suitable diagram. 6+2