

Reg. No.:



Name:

University of Kerala

U9332

Second Semester FYUGP Degree Examination, April 2025

Multi-Disciplinary course

PHYSICS

UK2MDCPHY104 - Medical Physics

Academic Level: 100-199

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark Each.Answer all questions

Qn No.	Question	CL	CO
1	List the properties of living organisms	RE	1
2	Recall the significance of PET (Positron Emission Tomography) scanning in disease detection.	RE	3
3	Describe the primary function of proteins in biological systems.	UN	1
4	Compare radiography and fluoroscopy	UN	3
5	Summarize the purpose of the diagnostic process in medical physics.	UN	2
6	Describe the mechanical work done by all living organisms	UN	4

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Summarize the conditions that prevailed in earth during prebiotic period	UN	1
8	Outline the properties of Roentgen radiation	UN	2
9	Implement an imaging technique that uses radio isotopes	AP	3
10	Illustrate the electrical activity during heart beat	AP	4

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A) Apply the concept of ionizing radiation and discuss its medical applications and risks. OR B) Employ radiation therapy in cancer treatment and explain the importance of treatment planning.	AP	2, 2
12	A) Examine the function of the mammalian heart OR B) Investigate the role of Ca^{2+} ions in muscle contraction.	AN	4, 4
13	A) Justify the comment "PET provides functional imaging of the brain" OR B) Justify the use of ultrasound imaging technique for pregnant woman.	EV	3, 3

Qn No.	Question	CL	CO
14	A) Design a diagnostic technique that combines magnetic field and radio waves OR B) Plan a diagnostic process that uses ionising radiation to produce real time video of inside of human body	CR	3, 3