Reg. No.: .....

Name: .....

University of Kerala

U8785

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

PHYSICS

UK2DSCPHY100 - Foundation Course in Physics-II

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	Identify the equation of the Reynolds number defined for an object moving in a fluid.	RE	4
2	What is the general formula for error in f(x, y) in terms of the errors Δx and Δy in x and y respectively.	RE	1
3	Explain whether the errors caused by approximations in a formula affect the accuracy or the precision.	UN	1
4	Outline two real life situations where you can experience pressure variations.	UN	3
5	Discuss the concept of stationary waves?	UN	2
6	Explain how viscosity affects fluid motion?	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	Describe the difference between cohesive and adhesive forces in the context of capillary action.	UN	3
8	How does increasing the number of measurements improve precision?	UN	1
9	If the measured length of a wire is 15.62 cm and the actual length is 15.70 cm, calculate the absolute and relative errors.	AP	1
10	Why does a person’s blood pressure change when they go from lying down to standing up?	AP	3

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) Sketch the diagram of Venturimeter and construct an expression for Rate of flow of liquid? OR B) Solve the equation of continuity for an incompressible fluid and illustrate mass conservation in fluid flow	AP	4, 4
12	A) Derive relation between velocity, tension and linear mass density of a wave on a string. OR B) Distinguish between transverse and longitudinal waves with examples	AN	2, 2
13	A) Here are the equations of three waves. (1) y(x,t)= 2 sin (4x-2t) (2) y(x,t)= sin (3x-4t) (3) y(x,t)= 2 sin (3x-3t) Find the wave speed of the waves and rank them accordingly. OR B) Evaluate the significance of wave parameters such as amplitude, phase, wavelength, wave number, period, frequency, angular frequency, and phase constant in determining the behavior of a wave.	EV	2, 2

Qn No.	Question	CL	CO
14	A) Create a graph with data points and error bars using the data below. Explain why error bars are important in experiments, especially for checking how reliable and valid the results are. Trial | Independent Variable (x) | Dependent Variable (y) | Uncertainty (±) 1 | 1 | 2.5 | 0.2 2 | 2 | 4.9 | 0.3 3 | 3 | 7.4 | 0.4 4 | 4 | 9.8 | 0.3 5 | 5 | 12.3 | 0.5 OR B) A student collected water temperature values over time and obtained the following data: Time (min) | Temperature (°C) | Uncertainty (±°C) 0 | 80.0 | 1.0 5 | 70.5 | 1.0 10 | 63.2 | 1.0 15 | 58.0 | 1.0 (a) Plot a rough time vs temperature graph including error bars.(b) Create a report based on this graph.	CR	1, 1