

Reg. No.:



Y7564

Name:

University of Kerala

Fourth Semester FYUGP Degree Examination, May 2026

Skill Enhancement Courses

PHYSICS

UK4SECPHY200 - Basic Instrumentation Skills

Academic Level: 200-299

2024 Admission

Time: 1 Hour

Max. Marks: 28

Part A. 4 Marks ,Time 5 Minutes (Cognitive Level :Remember(RE)/Understand(UN))Objective Type 1 mark each,
Answer all questions

Qn No.	Question	CL	CO
1	Name the types of deflection plates used in a CRO.	RE	3
2	Label the emitter, base, and collector in the symbol of a PNP transistor.	RE	1
3	Discuss any two applications of CRO.	UN	3
4	Interpret why linearity is important in a transducer	UN	2

Part B. 8 Marks ,Time 15 Minutes (Cognitive Level :Understand(UN)/Apply(AP))Short Answer 2 marks each, Answer all questions

Qn No.	Question	CL	CO
5	Distinguish between Sine and Square wave signal generators.	UN	3
6	Explain instrumental error with an example.	UN	1
7	Illustrate how a strain gauge works as a passive transducer	AP	2
8	Apply your knowledge about LEDs to give two reasons for choosing LED bulbs over incandescent bulbs.	AP	2

Part C. 16 Marks ,Time 40 Minutes (Cognitive Level :Apply(AP)/Analyse(AN)/Evaluate(EV))Long Answer 4 marks each, Answer all questions choosing among options* within each question

Qn No.	Question	CL	CO
9	A) Establish the reason why the current is very small in a reverse biased PN junction diode (almost zero) even though the applied voltage is large. OR B)	AP	1, 1

Qn No.	Question	CL	CO
	Illustrate the growth of the depletion layer in a PN junction diode.		
10	A) Examine piezoelectric transducers and strain gauges OR B) Compare and analyse the accuracy and precision of two transducers using the given data. <i>The true value of the quantity is 25 units.</i> <i>Transducer A readings: 24, 25, 26</i> <i>Transducer B readings: 20, 21, 22</i>	AN	2, 2
11	A) Choose a suitable capacitive transducer for displacement measurement and justify your answer. OR B) Assess the advantages and disadvantages of a thermocouple.	EV	2, 2
12	A) Construct a definition of resistor and design a general rule chart for resistor colour coding. OR B) Design a resistor network using given resistors (2Ω, 4Ω, 6Ω) to obtain an equivalent resistance of 3Ω. Explain your configuration.	CR	1, 1