TOTAL PAGES: 2

22PHU412N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Fourth Semester)

Branch- **PHYSICS**

ELECTRONIC INSTRUMENTATION

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The instrumental errors can be avoided by a) Using magnetic shield b) calibrating the instruments against a standard c) sealing components in the instruments d) air conditioning	K1	CO1
	2	The working principle of an atomic clock is a) Vibration of a small quartz crystal b) Simple Harmonic motion of cesium atoms c) Resonant frequency in cesium atom d) De-excitation of rubidium atoms	K2	CO1
2	3	To convert galvanometer into ammeter, a shunt resistance is connected in a) in a place of galvanometer b) no resistance is needed c) series with the galvanometer d) parallel with the galvanometer	K1	CO2
	4	The product of ohms per volt and full scale voltage is called a) Total volt meter resistance b) Peak voltage c) Average voltage d) Instantaneous voltage.	K2	CO2
3	5	CRO is used in a radar for a) Study the pattern of flight b) Visualizing a target c) Measuring voltage d) Determining the distance between source and destination	K2	CO3
	6	Period of a waveform is obtained from CRO by using the relation a) T= number of divisions occupied by one cycle x time b) T= number of divisions occupied by one cycle x (1/ division) c) T= number of divisions occupied by one cycle x (time /division) d) T= number of divisions occupied by one cycle	K2	CO3
4	7	Active transducers develops _____ a) mechanical parameter b) electrical parameter c) chemical parameter d) physical parameter	K1	CO4
	8	When a piezoelectric material deforms due to the application of an electric voltage, it is known as a) Piezo resistive effect b) Piezo voltaic effect C) Piezo electric effect d) Inverse Piezo electric effect	K2	CO4

Cont...

5	9	The sound waves used in echocardiography is a) Audible sound waves b) Radio waves c) ultrasonic waves d)Infrasonic waves	K1	CO5
	10	The electrode gel used in EEG serves to a) Amplify the brain signals b) Reduce skin resistance c) Increase the impedance between the electrode and the scalp d) Improve image clarity	K2	CO5

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Differentiate static and dynamic characteristic of an instrument.	K2	CO1
		(OR)		
	11.b.	Explain the types of static error. How can it be minimized?		
2	12.a.	With a suitable diagram, explain the operation of an Ayrton shunt.	K3	CO2
		(OR)		
	12.b.	Construct a AC voltmeter using half wave rectifier.		
3	13.a.	Draw the block diagram of an Oscilloscope and state the functions of each block.	K2	CO3
		(OR)		
	13.b.	Describe with diagram, the operation of a dual beam CRO.		
4	14.a.	Examine the strain resistance relation.	K4	CO4
		(OR)		
	14.b.	Analysis the operation of a Capacitive transducer.		
5	15.a.	Inspect the recording setup Electromyography	K4	CO5
		(OR)		
	15.b.	Compare Electro retinography and Electro oculography.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Outline the different types of electrical standards.	K2	CO1
2	17	Explain with a diagram how a multimeter can be used as a voltmeter and ammeter.	K3	CO2
3	18	How the frequency can be measured by a CRO using lissajous figures?	K2	CO3
4	19	Examine the construction and characteristics operation of LVDT. Point out the advantages of LVDT.	K4	CO4
5	20	Analyze the stimulation methods of Pacemaker and find different modes of operation.	K4	CO5

Z-Z-Z END