22PHP208N/ 22PHP208

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(Second Semester)

Branch – **PHYSICS**

ANALOG DIGITAL ELECTRONICS AND MICROPROCESSORS

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	A JFET is a _____ device. (a) Voltage driven (b) current driven (c) ohms driven (d) None	K1	CO1
	2	A semiconductor is formed by _____ bonds. (a) covalent (b) electrovalent (c) co-ordinate (d) none of the above	K2	CO1
2	3	Multiplex means _____. (a) many to one (b) one to many (c) one to one (d) one to two	K1	CO2
	4	A Demultiplexer is a circuit with only one input but _____ outputs. (a) one (b) two (c) three (d) many	K2	CO2
3	5	A Shift register moves the stored bits _____. (a) left or right (b) left (c) right (d) straight	K1	CO3
	6	The counter is the electronic equivalent of a _____. (a) Binary odometer (b) voltmeter (c) ammeter (d) galvanometer	K2	CO3
4	7	An Oscillator converts _____. (a) a.c. power into d.c. power (b) d.c. power into a.c. power (c) mechanical power into a.c. power (d) none of the above	K1	CO4
	8	The operational amplifiers are_____ ICs. (a) digital (b) voltage (c) Analog (d) None	K2	CO4
5	9	_____ is the central processing unit of the microcomputer. (a) Microprocessor (b) wire (c) power supply (d) current	K1	CO5
	10	Intel 8085 is an _____. (a) PMOS Microprocessor (b) CMOS Microprocessor (c) NMOS Microprocessor (d) XMOS Microprocessor	K2	CO5

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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.	Describe an experiment to determine the characteristics of a transistor in a common emitter mode.	K2	CO1
		(OR)		
	11.b.	Explain about Zener diode.		
2	12.a.	What is demultiplexer? Explain the working of a 1 : 4 demultiplexer.	K3	CO2
		(OR)		
	12.b.	What is decoder? Explain the function of BCD to 7 segment decoder with a neat diagram.		
3	13.a.	Explain the operation of the clocked RS flip flop with block diagram and truth table.	K4	CO3
		(OR)		
	13.b.	Explain the operation of D flip flop with block diagram and truth table.		
4	14.a.	Explain with a circuit diagram, the working of OPAMP as non – inverting amplifier.	K5	CO4
		(OR)		
	14.b.	Describe the construction and working of Schmitt trigger		
5	15.a.	Explain Memory mapped I / O scheme and I / O mapped I / O scheme.	K6	CO5
		(OR)		
	15.b.	Give any five instructions in data transfer group. Explain their function with a example.		

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	Describe the construction and working of a JFET.	K5	CO1
2	17	Explain the method of three variable Karnaugh map simplification with necessary diagram.	K4	CO2
3	18	Explain the operation of shift register with block diagram and waveform diagram.	K6	CO3
4	19	With a neat circuit diagram, discuss the working of a monostable multivibrator. Obtain an expression for the time constant of the multivibrator.	K5	CO4
5	20	Explain the addressing modes of 8085 microprocessor with examples.	K4	CO5

Z-Z-Z END