REV-01 BPT/118/40/45

SET B

2023/12

BACHELOR OF PHYSIOTHERAPY . FIRST SEMESTER MECA & BASIC ELECTROTHERAPY

BPT - 103
[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Time: 30 min.

Objective)

Full Marks: 70 Marks: 20

Choose the correct answer from the following:

1×20=20

	•			
1.	Which of the following is responsible for a. ALU c. Control Unit	b.	netic and logical operations Memory All the above	
2.	If two voltages of values 18 V and 12 V voltage will be a. 18 V c. 30 V	b.	nected in series opposing circuit, the net	
3.				
٠,	a. Transistor c. IC	b.	Vacuum tube AI	
		u.	Al	
4.	Monitor is an example of a. Input Device c. Memory device		Storage device Output device	
5.	If a wire having length 2m and area 4m² has a resistance of 8 Ohm. Its resistivity is			
٠.	a. 8 ohm-m		16 ohm-m	
	c. 20 ohm-m		4 ohm-m	
6.	Full Adder performs binary addition operation of			
	a. 3 bits		2 bits	
	c. 1 bits	d.	7 bits	
7.	Diode is a			
	a. Three terminal device	b.	Two terminal device	
	c. One terminal device	d.	None of these	
8.	The hexadecimal form of the binary number 11111011 is			
	a. A3		AF	
	c. FA	d.	FB	
9.	The 2's compliment of the number 10101101 is			
	a. 01010010		11010010	
	c. 01010011		11101111	

10. In case of conductor, the forbidden energy band is		
b. Very large	a. Large	
d. Negligible	c. Small	
b. Σ I=2	 According to KCL, a. Σ I=1 	
d. I=0	c. Σ I=0	
	12. The electronic circuit that converts AC to DC is called	
b. Amplifier	a. Converter	
d. Clipper	c. Rectifier	
	13. KVL can be applied to	
b. Open path	a. Closed path	
d. None of these	c. Both (a) & (b)	
h 2	14. In 4:1 MUX, the number of select line	
b. 3	a. 2	
d. 4	c. 1	
	15. DEMUX is also called	
b. Data distributor	a. Data selector	
d. All the above	c. Data analyzer	
	16. Transistor is a	
h Two insertion devices		
b. Two junction deviced. All of these	a. Three junction device	
u. All of these	c. Uni-junction device	
	17. CPU consists of	
b. ALU & Control Unit	a. ALU & Memory	
d. All the above	c. Control Unit & Memory	
onstruct an AND gato?	18. How many NAND gates are required	
b. 2	a. 3	
d. 1	c. 4	
1. 44044	19. Binary equivalent of the number (25) ₁₀	
b. 11011	a. 10101	
d. 01111	c. 11001	
	20. Voltage division rule is applicable to	
b. Parallel Circuit	a. Series Circuit	
d. All the above	c. Both (a) & (b)	
All the above	Dotti (a) & (b)	

2

USTM/COE/R-01

(<u>Descriptive</u>)

Time: 2 hrs. 30 min. Marks: 50

[Answer question no.1 & any four (4) from the rest]

1.	generation of computer.			
2.	Define Kirchhoff's laws. Two resistors of values 14Ω and 10Ω are connected across a voltage source of 6V. Another 10Ω resistor and 5V voltage source are connected across the previous combination. Find the values of current flowing in the two mesh formed.	10		
3.	a. Explain with the help of block diagram the architecture of computer.b. Design a half-subtractor with the help of truth table.	5+5=10		
	or besign a man submeter want the help of train the besign as			
4.	 a. Design a Full Adder circuit with the help of truth table. b. Subtract (15)₁₀ from (10)₁₀ in 2's compliment method. 	7+3=10		
5.	5. What do you mean by Multiplexer? Design a 4:1 MUX with the help of truth table.			
6.	a. Explain with the help of diagram 1×2 DEMUX.b. Differentiate between Semiconductor, Conductor and Insulator.	5+5=10		
7.	a. What is a transistor? What are the various configurations of transistors? Explain with the help of diagram.	6+4=10		
	b. In a circuit, if series opposing voltages are 12 V and 6 V and two resistors of values $4\Omega \& 8\Omega$ are connected in series, then compute			
	(i) Circuit current (ii) Power supplied by the two batteries			
	(iii) Power dissipated in two resistors			

8. a. Find the binary equivalent of the decimal number (13.25)₁₀.
b. Convert (11011.1011)₂ into decimal.

2.5+2.5 +5=10

c. Write short notes on half wave rectifier.