#### **GANPAT UNIVERSITY**

# U. V. PATEL COLLEGE OF ENGINEERING

#### **B.TECH. SEM-I**

# **2ES103: BASIC OF ELECTRICAL ENGINEERING** CH. 1 D.C. CIRCUITS I

## 1: ASSIGNMENT &TUTORIAL

# Part – I Multiple Objective Questions (MCQ)

C)

1.2 F

1.	The is responsible for the current to flow in a closed circuit.					
	A) Electric charge	<b>B</b> )	Potential difference			
	C) Resistance	D)	All of the above			
2.	The combined resistance of two equal resistors connected in parallel is equal to					
	A) One half the resistance of one resistor	<b>B</b> )	Twice the resistance of one resistor			
	<b>C</b> ) Four times the resistance of one	D)	One fourth the resistance of one			
	resistor		resistor			
<b>3.</b>	When the resistances are connected in para	allel circ	cuit then			
	<b>A)</b> Branch currents are additive	<b>B</b> )	Conductance are additive			
	C) Powers are additive	D)	All of the above			
4.	If a 60 W and 100 W lamps in series and are connected to a source of supply, which					
	lamp will give more light					
	<b>A</b> ) 100 W	B)	60 W			
	C) Both will give same light	D)	None of the bulb will glow			
<b>5.</b>	How many 200 W/220 V incandescent lam	nps con	nected in series would consume the			
	same total power as a single 100 W/220 V incandescent lamp?					
	A) not possible	B)	4			
	<b>C</b> ) 3	D)	2			
6.	Ohm's law is not applicable to					
	A) DC circuits	<b>B</b> )	High currents			
	C) Small resistors	D)	Semi-conductors			
7.	How much resistance is needed to draw 17	'.6 mA	from a 12 volt source?			
	A) 212 $\Omega$	<b>B</b> )	6.8 k 🖸			
	C) 68 $\Omega$	D)	680 Ω			
8.	For the circuit shown below the curr	ent I flo	owing through the circuit will be			
	- w - w -					
	3.0 3.0					
	I					
	214					
	2V					
	111-					
	<b>A</b> ) 1/2 A	<b>B</b> )	1 A			
	C) 2 A	<b>D</b> )	4 A			
9.	The conductance of an 8 ohm resistance is	,				
- •	A) 12.5 mS	<b>B</b> )	8 mS			
	C) 12 S	<b>D</b> )	125 S			
10.	A capacitor stores 0.24 coulombs at 10 vol	,				
	<b>A)</b> 0.024 F	B)	0.6 F			

D)

2.4 F

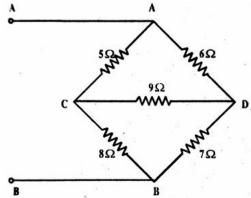
#### Part - II Shorts Questions

(1 & 2 Marks)

- **1.** Define the following and give their units of measurement
  - (i) Resistance. (ii) Electric Potential. (iii) Electric current.
- **2.** State the following:
  - (i) Kirchoff's laws. (ii) Ohms law.
- **3.** What do you mean by linear and nonlinear elements?
- **4.** What is meant by active and Passive elements?
- **5.** Define SuperPosition theorem?

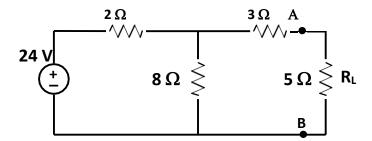
### Part - III Examples

1. Calculate the value of the equivalent resistance between A and B of the circuit shown in fig. by using delta/star transformation.



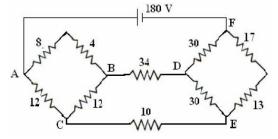
ANS. 6.4837  $\Omega$ 

2. Solve the circuit using Norton's theorem and Thevenin's Theorem and find the load current through  $R_{\rm L}$ 



ANS:  $I_L = 2 A$ 

3. Calculate the current flowing through the  $10\Omega$  resistor of circuit shown below, by using any method. Values of resistors are in ohm.



#### Part – IV Long Questions

(Only For Preparation)

- 1. Derive the equivalent star circuit from a delta circuit.
- 2. Explain voltage divider rule and current divider rule with necessary circuit.
- 3. Give the comparison between series resistance circuit and parallel resistance circuit.

*Notes: Students have to write only Part I, Part II, Part III	
1 total State in the to write only 1 are 19 1 are 12	