

Registration No. [REDACTED]

Course Code: ECE249

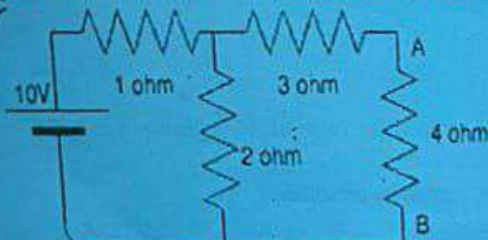
Course Title: BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

Time Allowed: 01:30hrs.

Read the following instructions carefully before attempting the question paper.

1. Match the Paper Code shaded on the OMR Sheet with the Paper code mentioned on the question paper and ensure that both are the same.
2. This question paper contains 30 questions of 1 mark each. 0.25 marks will be deducted for each wrong answer.
3. All questions are compulsory.
4. Do not write or mark anything on the question paper and/or on rough sheet(s) which could be helpful to any student in copying, except your registration number on the designated space.
5. Submit the question paper and the rough sheet(s) along with the OMR sheet to the invigilator before leaving the examination hall.

Q1. Calculate the Thevenin resistance across the terminal AB for the following circuit.

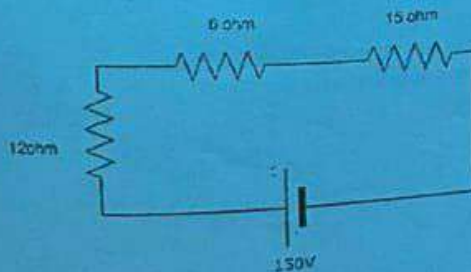


- a) 4.34 ohm      b) 3.67 ohm      c) 3.23 ohm      d) 2.32 ohm

Q2. Thevenin's theorem is true for \_\_\_\_\_

- a) Linear networks      b) Non-Linear networks  
c) Both linear networks and nonlinear networks      d) Neither linear networks nor non-linear networks

Q3. Find the voltage across the 6 ohm resistor.



- a) 150V      b) 181.6V      c) 27.27V      d) 54.48V

Q4. If a current of 5 A flows through a resistor of 12 ohm then the power developed across resistor is \_\_\_\_\_  
(a) 300 W      (b) 360 W      (c) 380 W      (d) 260 W

Q5. Three resistances each of 3 ohm are connected in delta. Its equivalent star will comprise three resistances each of value \_\_\_\_\_  
(a) 1 ohm      (b) 2 ohm      (c) 3 ohm      (d) 9 ohm

Q6. A current of 6 A enters a parallel combination of two resistances of 5 ohm and 10 ohm. Then the current through 10 ohm resistance will be \_\_\_\_\_  
(a) 2 A      (b) 4 A      (c) 5 A      (d) 6 A

Q7. Five resistances each of 10 Ohm are connected in series. The equivalent resistance of this combination is \_\_\_\_\_  
(a) 20 ohm      (b) 40 ohm      (c) 50 ohm      (d) 80 ohm



Q8. Can ohm's law be applied in an ac circuit?  
 a) Yes b) No c) Depends on the rms current d) Depends on the rms voltage

Q9. In a delta-connected load, the relation between line voltage and the phase voltage is?  
 a) line voltage > phase voltage  
 b) line voltage < phase voltage  
 c) line voltage = phase voltage  
 d) line voltage  $\geq$  phase voltage

Q10. The power factor is the ratio of \_\_\_\_\_ power to the \_\_\_\_\_ power.  
 a) average, apparent b) apparent, reactive c) reactive, average d) apparent, average

Q11) Which of the following elements of electrical engineering cannot be analyzed using Ohm's law?  
 a) Capacitors b) Inductors c) Transistors d) Resistance

CO2, L2

Q12) Which of the following is correct about the power consumed by R1 and R2 connected in series if the value of R1 is greater than R2?  
 a) R1 will consume more power b) R2 will consume more power  
 c) R1 and R2 will consume the same power d) The relationship between the power consumed cannot be established

CO2, L2

Q13) What kind of quantity is an Electric potential?  
 a) Vector quantity b) Tensor quantity c) Scalar quantity d) Dimensionless quantity

CO2, L2

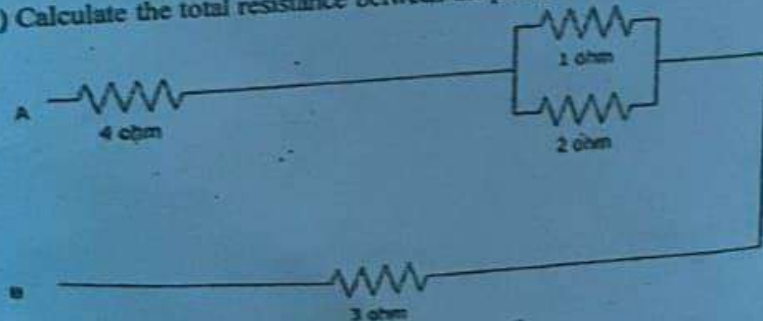
Q14) What is responsible for the current to flow?  
 a) Protons b) Electrons c) Nucleus d) Protons and Electrons

CO2, L2

Q15) Which of the following according to KCL must be zero?  
 a) Algebraic sum of currents in closed-loop  
 b) Algebraic sum of power in closed-loop  
 c) Algebraic sum of currents entering and leaving a junction  
 d) Algebraic sum of voltages across the input and output

CO2, L2

Q16) Calculate the total resistance between the points A and B.



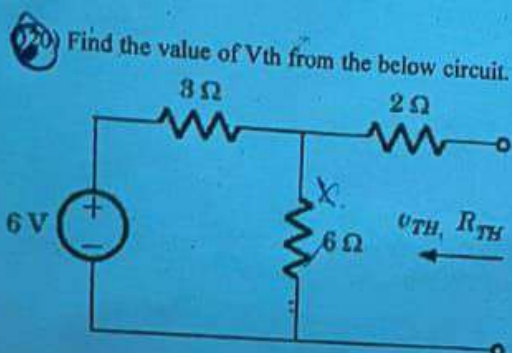
a) 7 ohm b) 0 ohm c) 7.67 ohm d) 0.48 ohm

CO2, L2

Q17) Batteries are generally connected in \_\_\_\_  
 a) Series b) Parallel c) Either series or parallel d) Neither series nor parallel

Q18) Which of the following is not an expression power?  
 a)  $P=VI$  b)  $P=I^2R$  c)  $P=V^2/R$  d)  $P=I/R$

Q19) A bulb has a power of 200W. What is the energy dissipated by it in 5 minutes?  
 a) 60J b) 1000J c) 60kJ d) 1kJ



a) 1 V b) 2 V c) 3 V d) 4 V (a)

Q21) A sinusoidal voltage is expressed as  $v = 20\sin(314.16t + \pi/3)$  V. Its frequency and phase angle respectively are  
 (a) 314.16 Hz, 60 deg (b) 60 Hz, 1.04 deg (c) 50 Hz, 60 deg (d) 314.16 Hz, -60 deg

Q22) Obtain the peak value if the rms value of an ac sinusoidal current is 10 A.  
 (a) 7.07 A (b) 14.14 A (c) 10 A (d) 28.2 A

Q23) In an ac circuit, reactive power and apparent power are equal in magnitude. Then the power factor of the circuit is  
 (a) 1 (b) 0.5 (c) 0 (d) -1

Q24) The power consumed by pure inductance connected to an ac source is  
 (a) zero (b) Very low (c) Very high (d) Infinite

Q25) In a purely capacitive circuit,  
 (a) Voltage lags the current by 90 deg (b) Voltage leads the current by 90 deg  
 (c) Voltage and current are in phase (d) None of the above



Q26) In a 10 Ohm resistance is connected to an ac supply  $v = 100 \sin(314t + 37^\circ)$  V, the power dissipated by the resistance is  
(a) 10000 W (b) 1000 W (c) 500 W (d) 250 W

CO2,

Q27) In a series RL circuit, the phase difference between the applied voltage and the current increase if  
(a)  $X_L$  is increased (b)  $X_L$  is decreased (c) R is increased (d) Supply frequency is decreased

CO2, L

Q28) The impedance of an circuit is given as  $15.5 \angle -30^\circ$  Ohm. It means that the circuit is  
(a) Capacitive (b) Inductive (c) Purely resistive (d) None of the above

CO2, L2

Q29) The resistance and the reactance in a series RC circuit are 7.5 Ohm each. In this circuit  
(a) The voltage leads the current by  $45^\circ$  (b) The current leads the voltage by  $45^\circ$   
(c) The voltage leads the current by  $60^\circ$  (d) The current leads the voltage by  $15^\circ$

CO2, L2

Q30) The impedance of an RC circuit is 20 Ohm at a frequency of 50 Hz. At frequency of 60 Hz, its impedance will be  
(a) Greater than 20 Ohm (b) Remain same and equal to 20 Ohm (c) Less than 20 Ohm (d) Can't Say

CO2, L2

-End of Question paper-