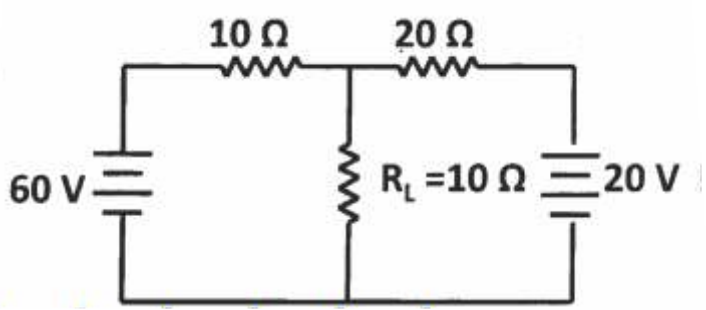
SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Define the resistance of a resistor. Explain the factors on which resistance of a conductor depends.
If R_X and R_Y are the values of two resistors, then write down their equivalent in each case when both are in series and parallel combinations respectively.

Q.24 State superposition theorem. Calculate the current flowing through R_L in the below circuit using superposition theorem.



Q.25 Write a short note on each of the followings
a) Inductive reactance
b) Capacitive reactance
c) Form factor
d) Peak factor

No. of Printed Pages : 4 221521
Roll No. .....

2nd Sem / Instrumentation & Control engg.

Subject : Fundamentals of Electrical Engineering

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 KVL
a) Works on the principle of conservation of energy
b) Works on the principle of conservation of charge.
c) Works on the principle of conservation of momentum
d) both (a) and (b)

Q.2 The power factor for a pure capacitive circuit is
a) 1 b) 0
c) 0.25 d) 0.50

Q.3 If three batteries with emf 10 Volts each are connected in series then the equivalent emf across the parallel connection is
a) 10 volts b) 20 volts
c) 30 volts d) 3.33 volts

Q.4 The relation between resistance and resistivity is
a) Both are porportional to each other
b) Both are same
c) Both are inversely proportional
d) Both increases with electron density

Q.5 Energy stored in an inductor having inductance 4H and the initial current flowing through it is 0.5 Amp is given by

a) 1 J b) 2 J
c) 1.5 J d) 0.5 J

Q.6 The measuring unit of Current is

a) Ohm b) H2
c) Ampere d) None of these

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Expand MPTT.

Q.8 Define the term reluctance.

Q.9 Five resistors with the resistance value of 100Weach are connected in series, then the equivalent value of resistance is _____W.

Q.10 Expand KVL.

Q.11 State Kirchhoff's current law.

Q.12 If the amplitude of an AC signal is 2.82 amp then the average value of the AC signal is_____ amp.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 State Norton's theorem. Also write the condition for a circuit to follow Norton's theorem.

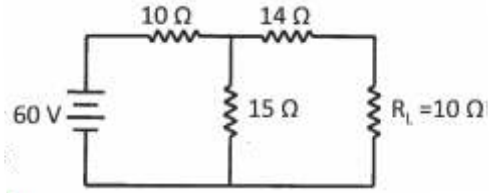
Q.14 For an AC signal, f(+) = 5.sin(157t+40°) amp, calculate the values of

a) Amplitude in amp
b) Frequency in Hz
c) Time period in seconds
d) Phase difference in degrees

Q.15 Define the term active and reactive power. Write any two differences between active and reactive power.

Q.16 Write down the principles of self and mutual induction. Also write any two differences between self and mutual inductance.

Q.17 Draw the Thevenin's equivalent circuit for the below figure across R_L



Q.18 Define resistivity .Also write relation between resistance and resistivity formula.

Q.19 Write any four differences between R-L and R-C circuit.

Q.20 Draw the symbol of voltage and current sources. Also write the characteristics of ideal voltage and current sources.

Q.21 Write a short note about maximum power transfer theorem.

Q.22 Calculate the equivalent resistance between the terminal A and B.