KUMARAGURU
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Register Number: …….

B.E DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2013)

Second Semester

U13EET212:Electrical and Electronic Circuits

(Common to CSE & IT)

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. What is the kilowatt-hour consumption of a 40 W lamp if it remains on for 1750 hours?

   a) 43.75 b) 70

   c) 43,750 d) 70,000

2. Ohm's law describes the mathematical relationship between ……..

3. In a loss free RLC circuit the transient current is

   a) Oscillating b) Square wave

   c) Sinusoidal d) Non-oscillating

4. The form factor is the ratio of……..

5. Ionization within a P-N junction causes a layer on each side of the barrier called the

   a) junction b) depletion region

   c) barrier voltage d) forward voltage

6. The conduction band is closest to the valence band in----------

7. SCR is a----

   a) 5 layer 3 junction device b) 2 layer 1 junction device.

   c) 4 layer 3 junction device d) 4 layer 2 junction device.

8. The latching current of a SCR is 18mA. Its holding current will be……..

9. The feedback signal in a(n) _____ oscillator is derived from an inductive voltage divider in the LC circuit.

   a) Hartley b) Armstrong

   c) Colpitts d) phase-shift

10. If the input to a comparator is a sine wave, the output is a----------

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. State Ohms law.
12. Write the general form of mesh analysis and nodal analysis.
13. Define power factor.
14. Define RMS value.
15. Distinguish between intrinsic and extrinsic semiconductor.
16. Mention some applications of zener diode.
17. Find the value of β of the transistor when α is 0.98.
18. Enlist the limitations of BJT.
19. What is an oscillator? Mention its types.
20. What is a summing amplifier?

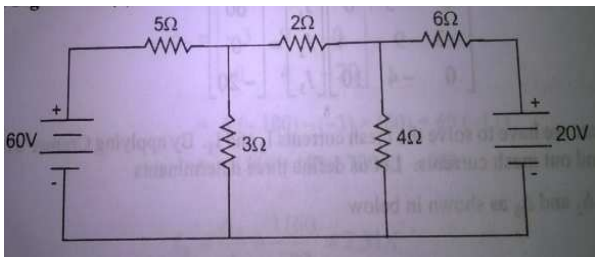
PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

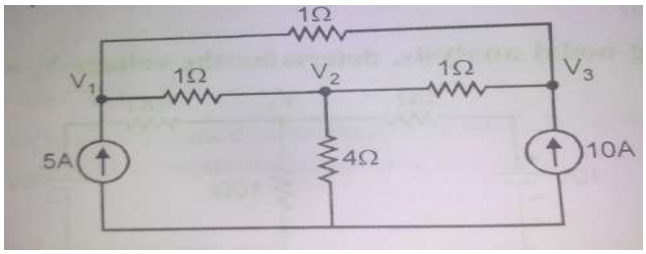
21. Draw the circuit and explain the characteristics of CB transistor.

22. a) Determine the power dissipation in the 4 Ω resistor of the circuit shown in the figure.



(OR)

b) Find V_1, V_2, V_3 by the nodal method for the given circuit.



23. a) i) A resistor of 20Ω and an inductor of 0.2H and a capacitor of 100μF are connected in series across 220V,50Hz main. Determine i) impedance ii) Current taken from mains iii) power iv)power factor. (10)

ii) Define real and reactive power (4)

(OR)

b) i) In a series RLC circuit , R=24Ω, L=191mH and C=66.3μF given that the supply voltage is 240V, 60Hz, find (i) equivalent impedance (ii) power factor (iii) currrent (iv) power and (v) reactive power. (12)

ii) Define apparent power. (2)

24. a) Describe the working of a PN junction diode with neat diagram. Also explain its V-I characteristics.

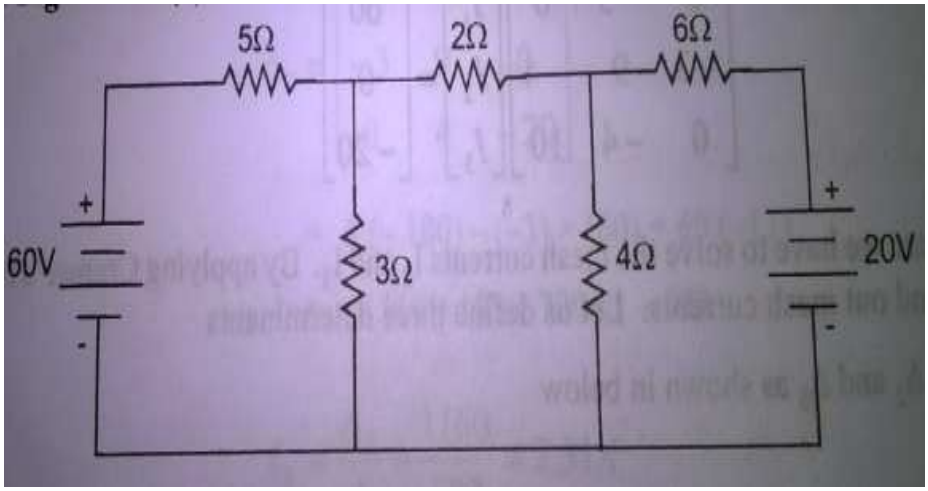
(OR)

b) Explain the operation of full wave bridge rectifier with neat sketch.

25. a) Explain the working principle of Wein bridge oscillator with the help of neat diagram.

(OR)

b) Explain the working of op-amp non inverting amplifier. Derive the expression for its voltage gain.


5Ω
2Ω
6Ω
+
60V
-
3Ω
4Ω
+
20V
-