

First year Higher Secondary Examination – 2012

Model Question Paper, Part – III

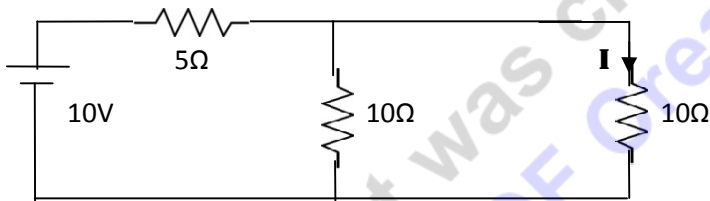
Time : 2 Hrs

Max Score : 60

ELECTRONICS

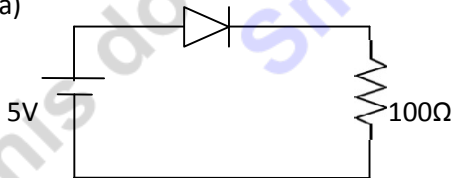
Cool Off Time : 15 min

- 1.a) List any 4 applications of electronics in industry. (2)
b) Draw the circuit symbols of 3 components ,each from active and passive devices. (3)
2. For a signal $v=5 \sin(628t+30^\circ)$. Find its peak value,rms value,frequency,time period and phase. (5)
- 3 .a) KVL can be used to solve complicated networks.Comment on it. (2)
b) Find the value of current,I in the circuit using KVL ? (3)



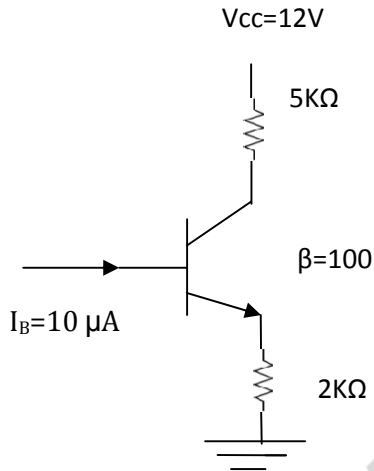
4. The devices made up of n-type semiconductor are faster than that of P-type.Give your opinion. (2)
5. Semiconductor in its pure form are not used for manufacturing electronic components .
Justify this statement. (2)

6.a)



- Considering the diode to be ideal,the current through 100Ω resistor is (1)
1) 50mA 2)0 3)100mA
- b) Justify your answer. (2)
7. You are supplied with a Zener diode of 6.2 V .Draw its forward and reverse characteristics.
What property of Zener diode is utilized in voltage regulators? (3)
8. a) A 230V, 50 Hz supply is given to a full wave bridge rectifier circuit using a transformer with turns ratio 5:1. Draw the corresponding circuit diagram, input and output waveforms. (3)
b) Find out (1)rms value of output voltage (2)PIV (3) DC value of output voltage (4) maximum efficiency (4)

9. a) CE configuration is preferred in amplifiers give reasons? (1)
- b) Identify the configuration with maximum input impedance? (1)
- c) For a transistor $I_c = 2\text{mA}$, $\alpha = 0.98$ find the value of I_B ? (2)
- d) Draw the load line for this circuit and fix the operating point? (3)



10. Draw the symbol of the following components? (4)
1. N-channel FET 2. SCR 3. TRIAC 4. Photo transistor

11) Draw the frequency response curve and mark the cut off frequencies and bandwidth? (3)

12. a) State the necessary conditions for a CE amplifier to be used as an oscillator? (2)

b) A phase shift oscillator uses 5pF capacitors. Find the value of R to produce a frequency of 800KHz ? (2)

13.a) $(110.101)_2 = (\text{-----})_{10}$ (3)

b) $(43.25)_{10} = (\text{-----})_2$

14 . a) Simplify the following logic and realize using gates (2)

$$F = A \overline{B} C + A B C + A B$$

b) Realize XOR gate using basic logic gates (2)

15. Explain the measurement of the following quantities using CRO (3)

- a) Voltage b) Current c) Resistance