End Semester Examinations

JULY 2023

Course Code: **EIE110**

Course: **PRINCIPLES OF ELECTRONICS**

QP No. :**UF033-2**

Duration: **3 hours**

Max. Marks:**100**

PART - A

Answer all the questions   **10 x 2 = 20 Marks**

1. A half wave rectifier uses a transformer of turns ratio 4:1. If the primary voltage is 240V rms, find (i)DC output voltage, (ii)PIV.

2. Differentiate avalanche breakdown and Zener breakdown.

3. In CB configuration the value of $\alpha=0.98$. A voltage drop of 4.9 V is obtained across a resistor of 5kΩ when connected to the collector circuit. Find the base current.

4. For a CE amplifier $V_{CC}=30V$, $R_C= 5k\Omega$, $R_B=1.5M\Omega$, and $\beta= 100$. Find the operating point. Neglect the V_{BE}.

5. Compare drift current and diffusion current.

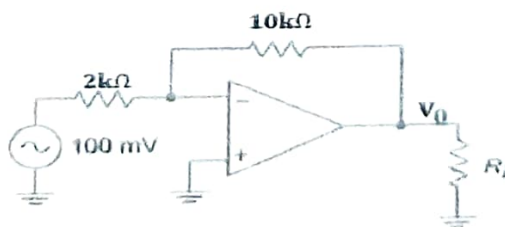6. Find V_0 for the inverting amplifier shown in Fig. 1

Fig. 1

7. Compare positive and negative feedback. Which type of feedback is used in the amplifier?

8. A 3V sine wave signal is applied as an input voltage (Vi) for the circuit shown in Fig.2. Draw the output voltage (V$_o$).
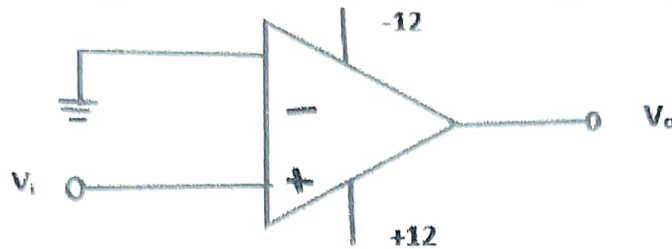

Fig.2

9. State De Morgan's theorem.

10. Which gates are called as universal gates? What are its advantages?

PART - B

Answer any Four questions   **4 x 15 = 60 Marks**

11. For the circuit shown in fig.3, determine (i)dc output voltage, (ii)rectification efficiency, (iii)PIV and (iv)ripple factor
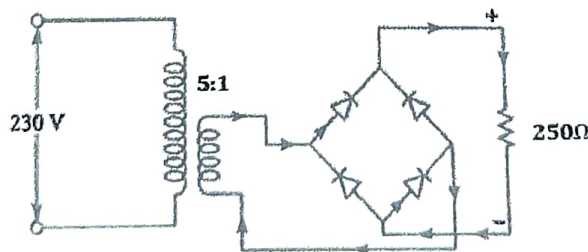

Fig.3

12. Explain the operation of JFET with its VI characteristics. Compare its operation with BJT.

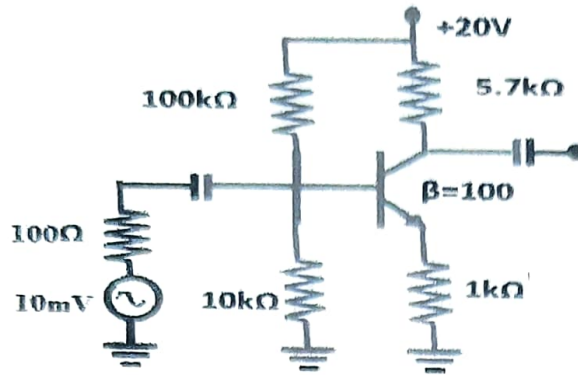13. Draw the DC load line and mark the operating points for the circuit shown in Fig.4

Fig.4

14. a) Explain the operation of the differentiator using op-amp. (8)
    b) Find the output voltage Vo for the circuit shown in Fig.5 (7)
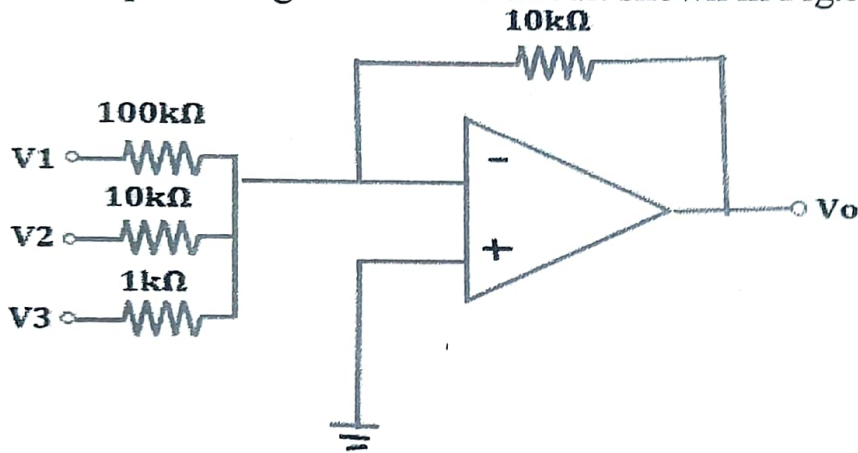

Fig.5

15. a) Compare inverting and non-inverting mode operation of op-amp.
    (8)

    b) Explain the operation of comparator with wave forms. (7)

16. Explain the operation of half subtractor and full subtractor using logic gates.

PART – C

Answer the following   **1 x 20 = 20 Marks**

17. a) If the output dc voltage of a center tapped full wave rectifier and a bridge type full wave rectifier is 100V, determine the peak inverse voltage in both the cases. Comment upon the results.   (6)

   b) Explain the operation of CE configuration of BJT with its characteristics.   (8)

   c) Explain the operation of multiplexer.   (6)

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