SE_E&TC May_2020 Electronic Devices and Circuits-I Sem-III CBCGS ECC-302
Marks-50

1. Depletion layer of a diode does not contain any ---------- at absolute zero temperature.
    a) Free Charge
    b) positive ion
    c) negative ion
    d) potential 1
2. A Germanium diode contains --------- volt as cut-in voltage. 1
    a) 0.3
    b) 2
    c) 3
    d) 0.7

3. In a fixed bias circuit RB is 500 kΩ and Vcc is 5 V then IB is ----------. Let RE= 0 Ω and VBE= 0.7 V.
    a. 8.6uA
    b. 15uA
    c. 20uA
    d. 25uA 2

4. Barrier potential in a diode is due to immobile ---------- in depletion region at P-N junction.
    a) Ions
    b) Free electrons
    c) Free holes
    d) Both electrons and holes 2

5. Ripple factor in a half wave rectifier is ---------- 2
    a) 1.21
    b) 0.48
    c) 0.5
    d) 1

a) To smooth out the ripples in an ac to dc converter, a ---------- is connected at the output of rectifier circuit.
    a. Amplifier
    b. Filter
    c. Attenuator
    d. Analog to digital converter 2

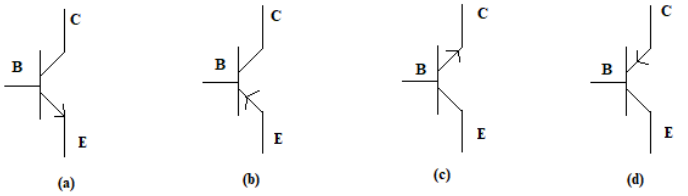
6. In ac to dc converter circuit, a capacitor (filter) is connected in ---------- with load and rectifier to smooth out ripples.
    a) Shunt
    b) Series
    c) Series-shunt
    d) Shunt-series 1

7. Bridge rectifier comprises of ---------- diode. 1
    a) Two
    b) One
    c) Four diodes
    d) Three diodes

8. Zener diode is operated in ---------- for voltage regulation 1
    a) Forward biased
    b) Reverse biased
    c) Short circuited condition
    d) Unbiased condition

9. Operating point for a transistor amplifier should be at-------- when used as amplifier.
    a) cut off region
    b) saturation region
    c) mid of load line
    d) anywhere 2

10. Identify the correct n-p-n transistor symbol. 1



11. ---------- bias technique is provides better stability than any other of biasing technique. 1
    a) Fixed
    b) potential divider
    c) collector feedback
    d) Emitter only

12. Output ac resistance of a bipolar transistor for given VA(Early voltage) = 50 V and collector current ICQ= 1 mA is ----------.
    a) 50 k Ω
    b) 55 k Ω
    c) 60 k Ω
    d) 65 k Ω 2

13. rπ = ---------- for ICQ= 0.793 mA and B(beta)= 100 with VT= 26 mV.
    a) 3.28 kΩ
    b) 4.28 kΩ
    c) 5.28 kΩ
    d) 6.28 kΩ 2

14. Assume that ICQ = 2 mA and VT= 26 mV then gm= ----------.
    a) 76.92 mA/V
    b) 86.92 mA/V
    c) 96.92 mA/V
    d) 106.92 mA/V 2

15. Drain current in a JFET for a given value of Vp= -3.5 V, IDSS = 5 mA and VGS = Vp/4 is
    a) 3.81 mA
    b) 2.81 mA
    c) 1.8 mA
    d) 0.8 mA 2

16. The input impedance of an ideal FET is ----------. 1
    a) Zero Ω
    b) Infinite Ω
    c) 100 KΩ
    d) 500 kΩ

17. Drain current in a JFET for a given value of Vp= -3.5 V, IDSS = 5 mA and VGS = Vp is
    a) 1 mA
    b) 0 mA
    c) 2 mA
    d) 1.5 mA 2

18. Lower and upper cut off frequencies of an amplifier is 0 Hz and 2 kHz therefore bandwidth of the amplifier is----------.
    a) 2 kHz
    b) 1kHz
    c) 1.5 kHz
    d) 4 kHz 2

19. Gain bandwidth product of an amplifier is always ----------. 1
    a) Constant
    b) Increases with frequency
    c) Decreases with frequency
    d) Fluctuate with frequency

20. Voltage gain of an amplifier is 200 and, input applied voltage is vi= 0.5 mV therefore output voltage is-------.
    a) 100 mV
    b) 125 mV
    c) 200 mV
    d) 175 mV

    2

21. Output of an amplifier is Vo=0.2 V and input voltage is vi= 0.25 mV, the gain of the amplifier is----------.
    a) 800
    b) 900
    c) 950
    d) 975

2

22. In a fixed bias common emitter circuit RB= 250 KΩ, Vcc= 5, B(beta) = 200 and VBE= 0.7 V then Ic = ------- . Let RE= 0 Ω
    a) 3.44 mA
    b) 5.76 mA
    c) 6.76 mA
    d) 8.76 mA

2

23. Let β = 100 and ICQ = 1 mA and assume VT= 26 mV then rπ = ----------. 2
    a) 2 kΩ
    b) 2.6 kΩ
    c) 3 kΩ
    d) 3.6 kΩ

24. In a FET drain current and input gate to source voltages are related in accordance with ---------- equation.
    a) Shockley's
    b) Faraday's
    c) KCL
    d) KVL

1

25. ---------- cut off frequency is dependent on junction capacitors in a transistor.
    a) Upper
    b) Lower
    c) Mid
    d) Both, lower and upper

2

26. Drain current in a JFET for a given value of Vp= -3.5 V, IDSS = 5 mA and VGS = Vp/2 is
    a) 1.25 mA
    b) 2.25 mA
    c) 3.25 mA
    d) 4.25 mA

2

27. In a fixed bias common emitter circuit RB= 250 KΩ, Vcc= 5, and VBE= 0.7 V then IB = ------- . Let RE = 0
    a) 17.2 uA.

b) 28.8 uA
c) 38.8 uA
d) 48.8 uA

2

28. rπ = ---------- for ICQ= 0.5 mA and B(beta)= 200 with VT= 26 mV. 2
    a) 10.4 kΩ
    b) 12.4 kΩ
    c) 14.4 kΩ
    d) 16 kΩ

29. Gain of an amplifier is Av= 100, input applied voltage is vi= 1 mV therefore output voltage is- ------.
    a. 1 V
    b. 0.1 V
    c. 0.5 V
    d. 1.5 V

2