



**1.** Which of the following is not true with respect to JFET?

- (a) The noise level in JFET is less compared to BJT.
- (b) Input impedance of JFET is more than that of BJT
- (c) The drain and source terminals of a JFET are not interchangeable.
- (d) None of these

**2.** A n-channel JFET has a drain current of  $5mA$ . It's  $I_{DSS} = 10mA$  and  $V_{GS(off)} = V_p = -6V$ . Compute  $V_{GS}$  in volts.

- (a) 1.80
- (b) 1.76
- (c) -1.76
- (d) -1.60

**3.** Which of the following is not true with respect to MOSFET?

- (a) Unipolar device
- (b) Voltage driven device
- (c) Less power consumption
- (d) None of these

**4.** A MOSFET device has both  $n^+$ -type source and drain, and the drain current flows only when gate to source voltage exceeds  $+2.0V$  . Which of the following conclusions can be drawn about the device?

- I.** The device is an n-channel MOSFET
- II.** It is enhancement type MOSFET
- III.** It has threshold voltage of value  $+2.0V$  .
- IV.** The channel conductance is determined by the hole mobility.

Select the correct answer using the code given below:

- (a)** II & III
- (b)** I, II & III
- (c)** II & IV
- (d)** I, II, III & IV

**5.** In n-channel JFET,  $V_{GS}$  &  $V_{DS}$  has certain negative and positive voltages respectively, what is the variable width of the space charge region around gate and substrate junction.

- (a)** More in Drain side than source side
- (b)** less in Drain side than source side
- (c)** Uniform
- (d)** None of these

**6.** What are the regions of operation in which JFET used for Automatic Control Gain (AGC) and Constant Current Source (CCS)? *(Based on output  $v$ - $i$  characteristics).*

- (a) AGC in ohmic region and CCS in saturation region
- (b) AGC in saturation region and CCS in ohmic region
- (c) Both ohmic region
- (d) Both saturation region

**7.** Which of the following option is true for **FET** and **BJT**?

- (i) Current Controlled device
- (ii) Voltage controlled device
- (iii) Unipolar device
- (iv) Bipolar device

- (a) FET  $\rightarrow$  (ii), (iv) and BJT  $\rightarrow$  (i), (iii)
- (b) FET  $\rightarrow$  (ii), (iii) and BJT  $\rightarrow$  (i), (iv)
- (c) FET  $\rightarrow$  (i), (iv) and BJT  $\rightarrow$  (ii), (iii)
- (d) FET  $\rightarrow$  (i), (iii) and BJT  $\rightarrow$  (ii), (iv)

**8.** How can the channel width in JFET be controlled?

- (a) By two back-biased PN junctions
- (b) By the length of the source
- (c) By the length of the drain
- (d) By Both source and drain length

**9.** In a MOSFET the transfer characteristics can be used to determine which of the following device parameters.

- (a) Threshold voltage and output resistance
- (b) Trans-conductance and output resistance
- (c) Threshold voltage and Trans-conductance
- (d) Trans-conductance and channel length modulation parameter

**10.** A junction FET can be used as a Voltage Variable Resistor

- (a) At pinch-off condition
- (b) Beyond pinch-off voltage
- (c) Well below pinch-off condition
- (d) For any value of  $V_{DS}$

### **Solution of objective problems**

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1. (c)

2. (c)

3. (d)

4. (b)

5. (a)

6. (a)

7. (b)

8. (a)

9. (c)

10. (c)