

# FIELD EFFECT TRANSISTOR (FET)

1. Field effect transistor (FET) operates on
  - a. Majority carriers only
  - b. Minority carries only
  - c. Positive charged ions only
  - d. On both majority and minority carriers
  
2. An FET is
  - a. Unipolar transistor
  - b. Bipolar transistor
  - c. Tri-polar transistor
  - d. None of these
  
3. An FET is characterised by
  - a. Current gain
  - b. Voltage gain
  - c. Power gain
  - d. None of these
  
4. The input impedance of an FET is of the order of
  - a.  $10^{20}$  ohm
  - b. Hundreds of mega ohm
  - c. Hundred ohms
  - d. A few ohm
  
5. In FET
  - a. Its source and drain terminals are interchangeable
  - b. Its source and drain terminals are not interchangeable
  - c. Its drain terminal is marked
  - d. None of these
  
6. The noise level in FET is
  - a. More than BJT
  - b. Negligibly small
  - c. less than BJT
  - d. None of these
  
7. N-channel FETs are superior to P-channel FETs because
  - a. They have higher input impedance
  - b. They have higher switching time
  - c. They consume less power
  - d. Mobility of electrons is greater than holes

8. When a reverse bias is applied to gate of JFET the depletion region width
- Is uniform in the channel
  - Is wider near the source and tapers near the drain
  - Is wider near the drain and tapers near source
  - None of the above
9. In an FET
- one junction is reverse biased and the other forward biased
  - both the junctions are reverse biased
  - one junction has reverse bias on both sides of the junction
  - one junction has reverse bias on both side and forward bias on the other
10. Pinch-off voltage in a JFET is
- the drain voltage that gives zero drain current
  - the gate to source voltage that gives unity drain current
  - the gate to source voltage that gives zero drain current
  - the drain voltage that gives infinite drain current
11. which of the following is the fastest switching device
- |         |           |
|---------|-----------|
| a. JFET | c. MOSFET |
| b. BJT  | d. Triode |
12. FET is advantageous in comparison with BJT because of
- High input impedance
  - Low noise
  - High gain-bandwidth product
  - Its current controlled behaviour
13. Which of the following statement is not true in case of FET?
- It has high input impedance
  - It is less noisy than bipolar transistor
  - It has large gain-bandwidth product
  - All of the above

14. In a JFET, if the gate voltage  $V_{gs}$  is made more negative, then
- Channel conductivity increases
  - Depletion region decreases
  - Channel conductivity decreases
  - Channel current increases
15. For a JFET, when  $V_{DS}$  is increased beyond the pinch-off voltage, the drain current
- increases
  - decreases
  - remains constant
  - first increased and then decreases
16. The gate controls
- |                             |                     |
|-----------------------------|---------------------|
| a. The width of the channel | c. The gate voltage |
| b. The drain current        | d. All the above    |

17. When the drain saturation current is less than  $I_{DSS}$  a JFET acts like a
- Bipolar junction transistor
  - Current source
  - Resistor
  - Battery

18. The pinch off voltage of a JFET is 5.0 volts. Its cut off voltage is
- |                    |                    |
|--------------------|--------------------|
| a. $(5.0)^{1/2}$ V | c. 5.0 V           |
| b. 2.5 V           | d. $(5.0)^{3/2}$ V |

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19. A JFET has disadvantage of
- being noisy
  - having small gain-bandwidth product
  - possessing positive temperature coefficient
  - having low input impedance
20. In a JFET, the primary control on drain current is exerted by
- channel resistance
  - size of depletion regions
  - voltage drop across channel
  - gate reverse bias

## Answers

- |  |  |         |         |
|--|--|---------|---------|
| 1. (a)   | 2. (a)                                   | 3. (b)  | 4. (b)  |
| 5. (a)   | 6. (c) No junctions are present like BJT |         |         |
| 7. (d)   | 8. (c)                                   | 9. (c)  | 10. (c) |
| 11. (c)  | 12. (a)                                  | 13. (c) | 14. (c) |
| 15. (c)  | 16. (a)                                  | 17. (c) |         |
| 18. (c) Pinch off voltage is same as cut-off voltage |  |         | 19. (b) |
| 20. (d)  |  |         |         |

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