



10. Which of the following device has the highest input impedance

- A) JFET      B) MOSFET      C) crystal diode      D) ordinary transistor

11. An SCR has \_\_\_ no of pn junctions

- A) 2      B) 3      C) 4      D) 1

12. A triac is equivalent to two SCR s \_\_\_\_

- A) in parallel    B) in series    C) in inverse parallel    D) none of the above

13. In UJT, the p-type emitter is \_\_\_ doped

- A) tightly      B) heavily      C) moderately    D) none of the above

14. Feedback is the process of taking a fraction of

- A) Input voltage      B) Output voltage      C) Supply voltage      D) Noise

Answer: B) Output voltage

15. Which type of feedback improves stability and reduces distortion?

- A) Positive feedback      B) Regenerative feedback  
C) Negative feedback      D) Zero feedback

Answer: C) Negative feedback

16. Gain with negative feedback is

- A) Greater than open-loop gain      B) Equal to open-loop gain  
C) Less than open-loop gain      D) Infinite

Answer: C) Less than open-loop gain

17. The feedback factor is usually denoted by

- A)  $\alpha$       B)  $\beta$       C)  $\gamma$       D)  $\delta$

Answer: B)  $\beta$

18. An oscillator is an electronic circuit that produces

- A) DC output      B) AC output without input signal  
C) Rectified output      D) Amplified DC

Answer: B) AC output without input signal

19. Barkhausen criterion requires

- A) Gain < 1      B) Gain > 1      C) Loop gain = 1 with zero phase shift      D) Phase shift = 180°

Answer: C) Loop gain = 1 with zero phase shift

20. Which oscillator uses LC tank circuit?

- A) RC oscillator                      B) Wien bridge oscillator                      C) Hartley oscillator                      D) Phase shift oscillator

Answer: C) Hartley oscillator

## II. Fill in blanks

1. • Tunnel diode works on the principle of \_\_\_\_\_.  
**Ans:** Quantum mechanical tunneling
2. • Tunnel diode is a \_\_\_\_\_ **doped** p–n junction.  
**Ans:** Heavily
3. • A photodiode is operated in \_\_\_\_\_ **bias**.  
**Ans:** Reverse
4. • The output current of a photodiode is proportional to \_\_\_\_\_.  
**Ans:** Intensity of incident light
5. • BJT has \_\_\_\_\_ **junctions and** \_\_\_\_\_ **terminals**.  
**Ans:** Two, three
6. • In an NPN transistor, majority charge carriers are \_\_\_\_\_.  
**Ans:** Electrons
7. • JFET is a \_\_\_\_\_ **controlled** device.  
**Ans:** Voltage
8. • In JFET, gate current is \_\_\_\_\_.  
**Ans:** Zero (negligible)
9. • MOSFET stands for \_\_\_\_\_.  
**Ans:** Metal Oxide Semiconductor Field Effect Transistor
10. • The gate in MOSFET is \_\_\_\_\_ **insulated** from the channel.  
**Ans:** Oxide
11. • CMOS stands for \_\_\_\_\_.  
**Ans:** Complementary Metal Oxide Semiconductor
12. • CMOS uses \_\_\_\_\_ **and** \_\_\_\_\_ **MOSFETs**.  
**Ans:** NMOS and PMOS
13. • UJT has \_\_\_\_\_ **p–n junction**.  
**Ans:** One
14. • UJT is mainly used as a \_\_\_\_\_ **oscillator**.  
**Ans:** Relaxation
15. • SCR is a \_\_\_\_\_ **layer, \_\_\_\_\_ junction** device.  
**Ans:** Four, three
16. • SCR has \_\_\_\_\_ **terminals**.  
**Ans:** Three
17. • DIAC is a \_\_\_\_\_ **terminal** device.  
**Ans:** Two
18. • DIAC conducts only after reaching \_\_\_\_\_ **voltage**.  
**Ans:** Breakover
19. TRIAC is a \_\_\_\_\_ **directional** device.  
**Ans:** Bidirectional
20. TRIAC is equivalent to \_\_\_\_\_ **SCRs connected back-to-back**.  
**Ans:** Two

### **III. Descriptive questions**

1. Draw the Characteristics of Tunnel Diode
2. Explain principle and working of solar cell
3. Explain the working of Photo Diode and Draw its Characteristics
4. Explain principle of SMPS
5. Explain the Construction of RC Coupled amplifier and draw its frequency response curve