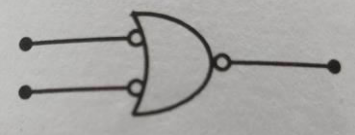


**TELANGANA UNIVERSITY**  
**S.S.R. DEGREE COLLEGE, NIZAMABAD (C.C:5029)**  
**VI SEMESTER INTERNAL ASSESSMENT II EXAMINATIONS**  
**PHYSICS (ELECTRONICS) QUESTION BANK**

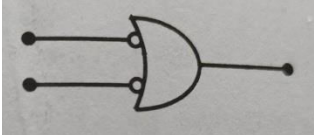
---

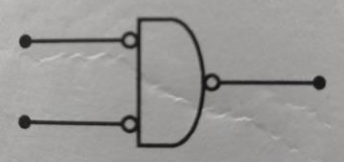
I. Choose the correct Answers.

1. In an SCR [b]  
(a)  $I_H < I_L$  (b)  $I_H > I_L$  (c)  $I_L > I_H$  (d) Both a and b
2. An SCR can be brought to forward conducting state with gate-circuit open when the applied voltage exceeds. [a]  
(a) The forward break over voltage (b) Reverse breakdown voltage  
(c) 1.5 V (d) Peak non-repetitive off-state voltage
3. The  $di/dt$  rating of an SCR is specified for its [d]  
(a) Decaying anode current (b) Decaying gate converter  
(c) Rising gate current (d) Rising anode current
4. Which of the following does not cause permanent damage of an SCR? [a]  
(a) High current (b) High rate of rise of current  
(c) High temperature rise (d) High rate of rise of voltage
5. UJT is generally used for [c]  
(a) Square wave generation (b) Triangle wave generation  
(c) Sawtooth wave generation (d) Sine wave generation
6. FET acts as voltage variable resistor at \_\_\_\_\_ region. [c]  
(a) Cutoff (b) Saturation (c) Ohmic (d) None
7. Solar cell is a type of \_\_\_\_\_ [c]  
(a) Photo-conductive device (b) Photo-emissive device  
(c) Photo-voltaic device (d) Electromotive device
8. A photo diode is \_\_\_\_\_ [a]  
(a) A photo detector (b) Operated in forward direction  
(c) Encased in opaque package (d) None of the above
9. The current flowing through a photo diode when there is no light is \_\_\_\_\_ [c]  
(a) More (b) Breakdown circuit  
(c) Dark current (d) Hole current
10. An LED can be made from \_\_\_\_\_ [c]  
(a) Germanium (b) Silicon  
(c) Gallium Arsenide (d) Phosphorescent material
11. 1's complement of 0000 is, [b]  
(a) 1110 (b) 1111 (c) 0100 (d) 1100
12. The binary number is represented by [d]  
(a) 0 (or) 1 (b) only '1' (c) only '0' (d) 0 (and) 1

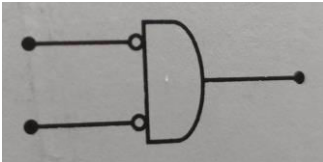
13.  $(10110111)_2 = ( \quad )_{10}$  [b]  
 (a) 133 (b) 183 (c) 152 (d) 188
14. \_\_\_\_\_ and \_\_\_\_\_ are the only two possible values in coefficient of binary number system [c]  
 (a) 0 (b) 1 (c) Both a & b (d) None
15. 2's complement of the number 1001 is [c]  
 (a) 0110 (b) 0001 (c) 0111 (d) 0101
16. The functions of AND gate with bubbles on input is same as \_\_\_\_\_ gate [b]  
 (a) AND (b) NOR (c) XOR (d) NOT
17. NAND gate is AND gate followed by \_\_\_\_\_ gate [a]  
 (a) NOT (b) OR (c) AND (d) NOR
18. According to Demorgan's theorem  $\overline{A+B} = \underline{\hspace{2cm}}$  [a]  
 (a)  $\overline{A} \cdot \overline{B}$  (b) AB (c) A + B (d)  $\overline{A} + \overline{B}$
19. Which of the following is the alternative symbol for NOR? [d]
- 

(a)



(b)
- 

(c)



(d)
20. The universal gate is \_\_\_\_\_ [a]  
 (a) NAND (b) AND (c) NOT (d) OR

## II. Fill in the Blanks

1. When forward voltage is applied to SCR, its gate recovery time increases
2. The V-I characteristics of SCR is also known as Static anode-cathode characteristics.
3. Shockley diode is a four layer PNPN silicon device
4. The UJT is operated as oscillator in negative resistance region.
5. In UJT, the resistivity of base terminal is very high.
6. FET acts as Voltage Variable Resistor under which drain resistance (r) varies with  $V_{GS}$
7. In photo diode, light signals are converted into electrical signals.
8. The dark current in photo diode is due to thermally generated minority carriers
9. LED emits light
10. Opto-coupler is also called opto isolator since it provides electrical isolation between any two circuits.
11. NOR gate is OR gate followed by NOT gate.
12. The binary number 10101 is equivalent to decimal number 21
13. Decimal number 10 is equal to binary number 1010
14. A binary number system employs base 2 system.
15. A binary digit is called as bit
16. 1's complement of the number 0111 is 1000
17. The function of AND gate with bubbles on its inputs is same as NOR gate
18. According to De-Morgan's theorem,  $\overline{AB} = \underline{\overline{A} + \overline{B}}$
19. NAND and NOR gates are called universal gates
20. A number system is a combination of digits or numbers.

### III. Short Answers.

1. Why FET is called as "voltage operated device"?

A: FET is called as voltage controlled device as, gate-source voltage i.e  $V_{GS}$ , controls drain current,  $I_D$

2. Define dark current in photodiode?

A: Dark current is a very small current that appears in reverse bias of photodiode i.e when no light is applied.

3. Define holding current of SCR?

A: The minimum value of anode current required to keep the SCR ON is called as holding current.

4. What is negative resistance region of UJT?

A: The region existing between the peak point and valley point is referred as negative resistance region of UJT.

5. What is a LED?

A: Light emitting diode is a PN junction diode which emits light in forward biased region.

6. What is binary number system?

A: A system that represents a number with only two digits i.e., 0 and 1 is known as binary system.

7. What is Hexadecimal number system?

A: A system that represents a number with the combination of 16 digits i.e., 0,1,2,3,4,5,6,7,8,9, A, B,C,D,E and F is known as Hexadecimal number system.

8. How one's complement is represented?

A: A binary number can be represented in one's complement form by simply replacing 1 with 0 and 0 with 1. For example, the one's complement of binary number 11010 is 00101.

9. What is a logic gate?

A: Logic gate is the basic element that builds a digital system to perform logical function.

10. What are the basic digital logic gates?

A: The three basic digital logic gates are 1) AND gate 2) OR gate 3) NOT gate