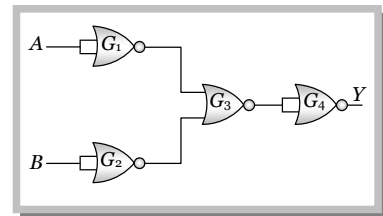


Value

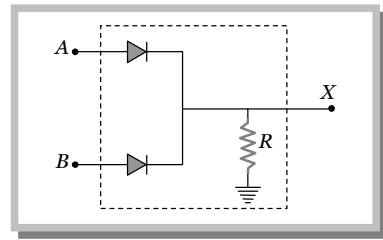
1. In diode, when there is saturation current, the plate resistance (r_p) is
 (a) Zero (b) Infinite (c) Some finite quantity (d) Data is insufficient
2. The grid voltage of any triode valve is changed from -1 volt to -3 volt and the mutual conductance is 3×10^{-4} mho. The change in plate circuit current will be
 (a) 0.8 mA (b) 0.6 mA (c) 0.4 mA (d) 1 mA
3. In a triode, $g_m = 2 \times 10^{-3}$ ohm $^{-1}$; $\mu = 42$, resistance load, $R = 50$ kilo ohm. The voltage amplification obtained from this triode will be
 (a) 30.42 (b) 29.57 (c) 28.18 (d) 27.15
4. The introduction of a grid in a triode valve affects plate current by
 (a) Making the thermionic emission easier at low temperature (b) Releasing more electrons from the plate
 (c) By increasing plate voltage (d) By neutralising space charge
5. Before the saturation state of a diode at the plate voltages of 400 V and 200 V respectively the currents are i_1 and i_2 respectively. The ratio i_1/i_2 will be
 (a) $\sqrt{2}/4$ (b) $2\sqrt{2}$ (c) 2 (d) $1/2$
6. A truth table is given below. Which of the following has this type of truth table
 A 0 1 0 1
 B 0 0 1 1
 y 1 0 0 0
 (a) XOR gate (b) NOR gate (c) AND gate (d) OR gate
7. The truth-table given below is for which gate
 A 0 0 1 1
 B 0 1 0 1
 C 1 1 1 0
 (a) XOR (b) OR (c) AND (d) NAND
8. The plate current i_p in a triode valve is given $i_p = K(V_p + \mu V_g)^{3/2}$ where i_p is in milliamperes and V_p and V_g are in volts. If $r_p = 10^4$ ohm, and $g_m = 5 \times 10^{-3}$ mho, then for $i_p = 8$ mA and $V_p = 300$ volt, what is the value of K and grid cut off voltage
 (a) $-6V, (30)^{3/2}$ (b) $-6V, (1/30)^{3/2}$ (c) $+6V, (30)^{3/2}$ (d) $+6V, (1/30)^{3/2}$
9. The amplification factor of a triode valve is 15. If the grid voltage is changed by 0.3 volt the change in plate voltage in order to keep the plate current constant (in volt) is
 (a) 0.02 (b) 0.002 (c) 4.5 (d) 5.0
10. The slopes of anode and mutual characteristics of a triode are 0.02 mA V^{-1} and 1 mA V^{-1} respectively. What is the amplification factor of the valve
 (a) 5 (b) 50 (c) 500 (d) 0.5
11. The slope of plate characteristic of a vacuum tube diode for certain operating point on the curve is $10^{-3} \frac{mA}{V}$. The plate resistance of the diode and its nature respectively
 (a) 100 kilo-ohms static (b) 1000 kilo-ohms static (c) 1000 kilo-ohms dynamic (d) 100 kilo-ohms dynamic
12. A triode has a mutual conductance of 2×10^{-3} mho and an amplification factor of 50. The anode is connected through a resistance of 25×10^3 ohms to a 250 volts supply. The voltage gain of this amplifier is
 (a) 50 (b) 25 (c) 100 (d) 12.5
13. The combination of gates shown below produces
 (a) AND gate
 (b) XOR gate
 (c) NOR gate
 (d) NAND gate



GRAVITY CLASSES

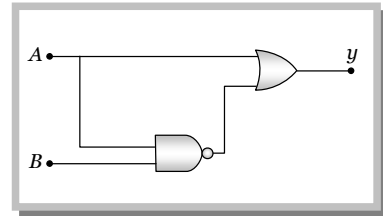
14. The circuit shown in figure is used to realise a logic gate. The gate is

- (a) OR
- (b) NOT
- (c) AND
- (d) None of these



15. What is the output of the combination of the gates shown in the fig.

- (a) $A + \overline{A.B}$
- (b) $(A.B) + (\overline{A.B})$
- (c) $(A + B).(\overline{A.B})$
- (d) $(A + B)(\overline{A + B})$



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