# EXERCISE – I

## CONCEPTUAL QUESTIONS

**Semiconductors**

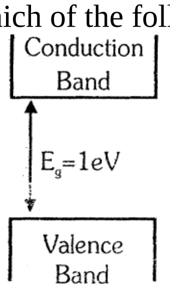
**1.** On increasing the temperature the specific resistance of a semiconductor
(1) increases (2*) decreases
(3) does not change (4) first decreases and then increases

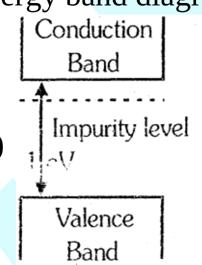
**2.** Platinum and silicon are cooled after heating up to 25°C then
(1) resistance of platinum will increase and that of silicon decreases
(2*) resistance of silicon will increase and that of platinum decreases
(3) resistance of both will decrease
(4) resistance of both increases

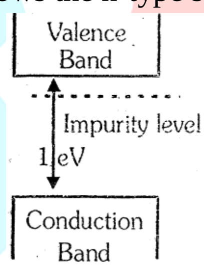
**3.** Electric conduction in a semiconductor takes place due to
(1) electrons only (2) holes only
(3*) both electrons and holes (4) neither electros nor holes

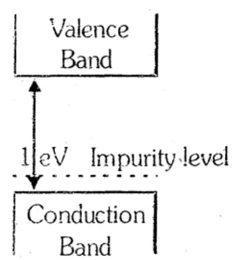
**4.** The atomic bonding is same for which of the following pairs
(1) Ag and Si (2*) Ge and Si (3) Ne and Ge (4) NaCl and Ge

**5.** Which of the following energy band diagram shows the n-type semiconductor?

(1) 


(2*) 


(3) 


(4) 


**6.** Let $n_p$ and $n_e$ be the numbers of holes and conduction electrons in an extrinsic semiconductor.
(1) $n_p > n_e$ (2) $n_p = n_e$ (3) $n_p < n_e$ (4*) $n_p \neq n_e$

**7.** A p-type semiconductor is
(1) positively charged
(2) negatively charged
(3*) uncharged
(4) uncharged at 0K but charged at higher temperatures

**8.** Which statement is correct of p-type semiconductor ?
(1) The number of electrons in conduction band is more than the number of holes in valence band room temperature
(2*) the number of holes in valence band is more than the number of electrons in conduction band at room temperature
(3) there are no holes and electrons at room temperature
(4) number of holes and electrons is equal in valence and conduction band

**9.** When an impurity is doped into a intrinsic semiconductor, the conductivity of the semiconductor
(1*) increases (2) decreases (3) remains the same (4) becomes zero

**10.** When we convert pure semiconductor into N-type the number of hole
(1) Increases (2*) Decreases (3) Remains constant (4) None

**11.** A semiconductor is damaged by a strong current, because
(1) lack of free electrons (2) decrease in electrons
(3*) excess of electrons (4) none of these

**12.** If $n_e$ and $n_h$ are the number of electrons and holes in a semiconductor heavily doped with phosphorus, then
(1*) $n_e >> n_h$ (2) $n_e << n_h$ (3) $n_e \leq n_h$ (4) $n_e = n_h$

**13.** Two wires P and Q made up of different materials have same resistance at room temperature. When heated, resistance of P increases and that of Q decreases. We conclude that
(1) P and Q both are conductors but because of being made of different materials it happens so.
(2) P is n-type semiconductor and Q is p-type semiconductor
(3) P is semiconductor and Q is conductor.
(4*) P is conductor and Q is semiconductor

**14.** When the conductivity of a semiconductor is only due to breaking of covalent bonds, the semiconductor is called
(1*) intrinsic (2) extrinsic (3) p-type (4) n-types

**15.** In an intrinsic semiconductor, number of electrons and holes at room temperature are
(1*) equal (2) zero (3) unequal (4) infinity

**16.** A semiconductor wire is connected in an electric circuit in series and temperature of semiconductor increases then the current in the circuit
(1) decreases (2) constant (3*) increases (4) will not flow

**17.** In germanium crystal, the forbidden energy gap in joule is
(1) $1.6 \times 10^{-19}$ (2) zero (3*) $1.12 \times 10^{-19}$ (4) $1.76 \times 10^{-19}$

**18.** In semiconductor at room temperature
(1*) valence band are partially empty and conduction band are partially filled
(2) valence band are fully filled and conduction band are partially empty
(3) valence band are fully filled
(4) conduction band are fully empty

**19.** The probability of electron to be found in the conduction band of an intrinsic semiconductor at a finite temperature
(1*) decreases exponentially with increasing band gap
(2) increases exponentially with increasing band gap
(3) decrease with increasing temperature
(4) is independent of the temperature and the band gap

**20.** In a p-type semiconductor, there are mainly
(1) free electrons (2*) holes (3) Both (1) and (2) (4) None of these

**21.** A conducting wire of Copper and Germanium are cooled from room temperature to temperature 80 K, then their resistance will
(1) increase
(2) decrease
(3) copper's increase and Germanium's decrease
(4*) copper's decrease and Germanium's increase

**22.** Choose the false statement from the following
(1*) the resistivity of a semiconductor increases with increase in temperature
(2) substances with energy gap of the order of 10 eV are insulators
(3) in conductors the valence and conduction bands may over lap
(4) the conductivity of a semiconductor increases with increases in temperature

**23.** Carbon, Silicon and Germanium atoms have four valence electron each. Their valence and conduction bonds are separated by energy band gaps represented by $(E_g)_C$, $(E_g)_{Si}$ and $(E_g)_{Ge}$ respectively. Which one of the following relationships is true in their case?
(1) $(E_g)_C < (E_g)_{Ge}$ (2*) $(E_g)_C > (E_g)_{Si}$ (3) $(E_g)_C = (E_g)_{Si}$ (4) $(E_g)_C < (E_g)_{Si}$

**24.** In semiconducting material the mobilities of electrons and holes are $\mu_e$ and $\mu_h$ respectively. Which of the following is true?
(1*) $\mu_e > \mu_h$ (2) $\mu_e < \mu_h$ (3) $\mu_e = \mu_h$ (4) $\mu_e < 0$; $\mu_h > 0$

**25.** Impurity energy level of n-type semiconductor lies in
(1) just above valence band (2*) just below conduction band
(3) between valence and conduction band (4) none of these

**26.** What is the energy gap in Si semiconductor?
(1) 4.4 eV (2) 0.3 eV (3) 0.7 eV (4*) 1.1 eV

**PN Junction and Biasing of Diode**

**27.** Region which have no free electrons and holes in a p-n junction is
(1) p-region (2) n-region (3) junction (4*) depletion region

**28.** In p-n junction at the near at junction there are
(1) positive ions (2) negative ions
(3*) positive and negative ions (4) electron and holes

**29.** Depletion layer in p-n junction region is caused by
(1) drift holes (2*) diffusion of free carriers
(3) migration of impurity ions (4) drift of electrons

**30.** In a P-N Junction diode not connected to any circuit
(1) potential is the same everywhere
(2) the P-type side is at a higher potential than the N-type side
(3*) there is an electric field at the junction directed from the N-type side to the P-type side

(4) there is an electric field at the junction directed from the P-type side to the N-type side

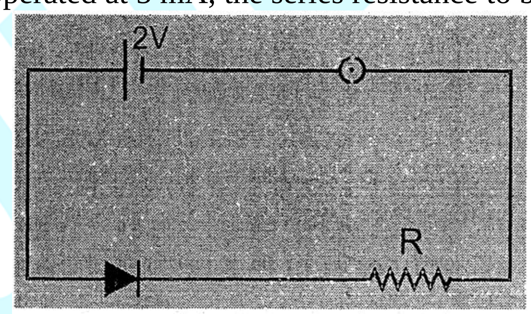
**31.** The minority current in a p-n junction is
(1*) from the n-side to the p-side
(2) from the n-side to the n-side
(3) from the n-side to the p-side if the junction is forward-biased and in the opposite direction if it is reverse biased
(4) from the p-side to the n-side if the junction is forward-biased and in the opposite direction if it is reverse biased

**32.** The majority current in a p-n junction is
(1) from the n-side to the p-side
(2*) from the p-side to the n-side
(3) from the n-side to the p-side if the junction is forward-biased and in the opposite direction if it is reverse biased
(4) from the p-side to the n-side if the junction is forward-biased and in the opposite direction if it is reverse biased

**33.** Diffusion current in a p-n junction s greater than the drift current in magnitude
(1*) it the junction is forward-biased
(2) it the junction is reverse-biased
(3) it the junction is unbiased
(4) in no case

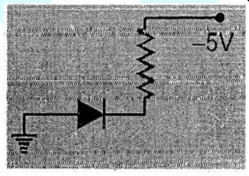
**34.** In a …………….. biased P-N junction, the net flow holes is from N-region to the P-region
(1) F.B.
(2*) R.B.
(3) Unbiased
(4) Both (1) and (2)

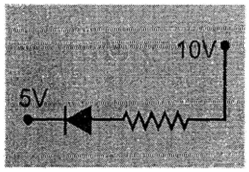
**35.** A 2V battery forward biases a diode however there is a drop of 0.5 V across the diode which is independent of current. Also a current greater then 10 mA produces large joule loss and damages diode . If diode is to be operated at 5 mA, the series resistance to be put is .

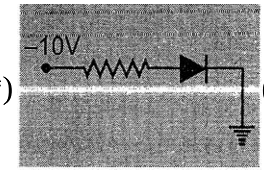


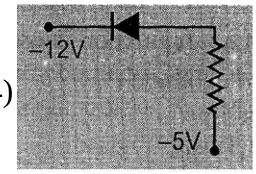

(1) 3 kΩ
(2) 300 kΩ
(3*) 300 Ω
(4) 200 kΩ

**36.** Which of the following diode is reverse biased?

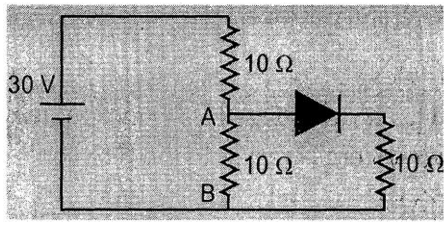
(1) 


(2) 


(3*) 

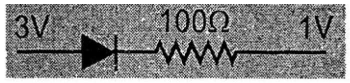

(4) 


**37.** Find $V_{AB}$




(1*) 10 V (2) 20 V (3) 30 V (4) None

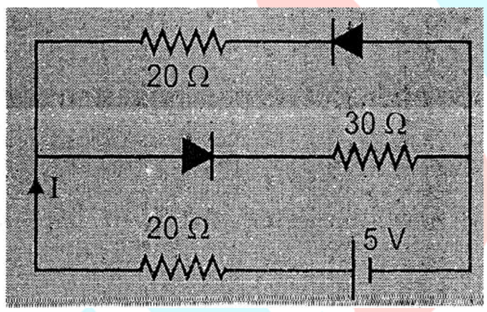
**38.** Assuming that the junction diode is ideal then the current through the diode is




(1) 200 mA (2*) 20 mA (3) 2 mA (4) zero

**39.** The resistance of a reverse biased pn-junction diode is about
(1) 1 ohm (2) $10^2$ ohm (3) $10^3$ ohm (4*) $10^6$ ohm

**40.** Current I in the circuit will be




(1) $\frac{5}{40}$A (2*) $\frac{5}{50}$A (3) $\frac{5}{10}$A (4) $\frac{5}{20}$A

**41.** In a p-n junction the depletion layer of thickness $10^{-6}$ m has potential across it is 0.1 V. The average electric field is (V/m)
(1) $10^7$ (2) $10^{-6}$ (3*) $10^5$ (4) $10^{-5}$

**42.** In a unbias p-n junction
(1*) high potential is at n side and low potential is at p side
(2) high potential is at p side and low potential is at n side
(3) p and n both are at same potential
(4) undetermined

**43.** On increasing the reverse bias to a large value in p-n junction diode then vale of current
(1) remains fixed (2) increases slowly (3) decrease slowly (4*) suddenly increase

**44.** Reverse bias applied to a junction diode
(1) lowers the potential barrier (2*) raises the potential barrier
(3) increases the majority carrier current (4) increases the minority carrier current

**45.** Correct statement for diode is
(1*) in full wave rectifier both diodes work alternatively

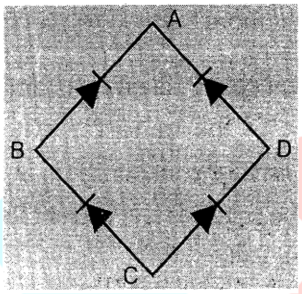
(2) in full wave rectifier both diodes work simultaneously
(3) efficiency of full wave rectifier is same
(4) full wave rectifier in bidirectional

**46.** When a junction diode is reverse biased, the flow of current across the junction is mainly due to
(1) diffusion of charges (2) depends upon the nature of material
(3*) drift of charges (4) both drift and diffusion of charges

**47.** The width of depletion region in a p-n junction diode
(1*) increases when reverse bias is applied (2) increase when a forward bias is applied
(3) decreases when a reverse bias is applied (4) remains the same irrespective of the bias voltage

**SPECIAL TYPES OF DIODES**

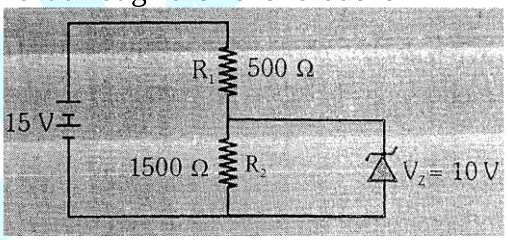
**48.** For the given circuit shown in fig. to act as full wave rectifier : a.c. input should be connected across ……………….. and ……………….. the d.c. output would appear across ……………….. and ………………..




(1) A, C, B, D (2*) B, D, A, C (3) A, B, C, D (4) C, A, D, B

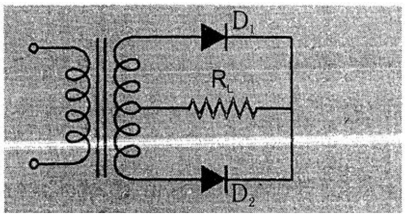
**49.** Forbidden energy gap of Ge is 0.75 eV, maximum wave length of incident radiation of photon for producing electron - hole pair in germanium semiconductor is :-
(1) 4200 Å (2*) 16500 Å (3) 4700 Å (4) 4000 Å

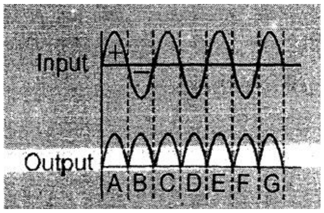
**50.** In the circuit given the current through the zener diode is




(1) 10 mA (2) 6.67 mA (3) 5 mA (4*) 3.33 mA

**51.** A full wave rectifier circuit along with the input and output voltage is shown in the figure then output due to diode $D_2$ is




(1) A, C (2*) B, D (3) B, C (4) A, D

**52.** If a full wave rectifier circuit is operating from 50 Hz mains, the fundamental frequency in the ripple will be
(1) 25 Hz (2) 50 Hz (3) 70.7 Hz (4*) 400 Hz

**53.** The electrical circuit used to get smooth DC output from a rectifier circuit is called
(1*) filter (2) oscillator (3) logic gate (4) amplifier

**54.** When tow semiconductor of p and n type are brought into contact, they form a p-n junction which acts like a
(1*) rectifier (2) amplifier (3) oscillator (4) conductor

**55.** In p-n junction photocell electromotive force due to monochromatic light is proportional to
(1) p-n potential barrier (2*) intensity of light
(3) frequency of light (4) p-n applied voltage

**56.** Efficiency of a half wave rectifier is nearly
(1) 80% (2) 60% (3*) 40% (4) 20%

**57.** Zener dode is used for
(1) rectification (2*) stabilization
(3) amplification (4) producing oscillation in an oscillator

**TRASNISTOR**

**58.** A transistor is used in the common emitter mode as an amplifier then
(A) the base emitter junction is forward baised
(B) the base emitter junction is reverse baised
(C) the input signal is connected in series with the voltage applied to bias the base emitter junction
(D) the input signal is connected in series with the voltage applied to bias the base collector junction
(1) A, B (2) A, D (3*) A, C (4) Only C

**59.** In a transistor
(1) the emitter has the least concentration of impurity
(2) the collector has the least concentration of impurity
(3*) the base has the least concentration of impurity
(4) all the three regions have equal concentration of impurity

**60.** In transistor symbols, the arrow shows the direction of
(1*) current in the emitter (2) electron current in the emitter
(3) holes current in the emitter (4) electron current in the emitter

**61.** The region of transistor in which extra impurity is doped to obtain a large number of majority carrier is called as
(1*) emitter (2) base
(3) collector (4) any one of these depending upon the transistor

**62.** An oscillator is nothing but an amplifier with
(1*) positive feedback (2) high gain

(3) no feedback (4) negative feedback

**63.** Input resistance of common emitter transistor compare with output resistance is
(1*) less (2) more (3) less and more (4) none of these

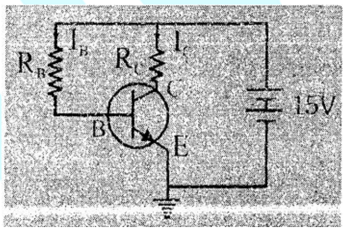
**64.** The current gain β of a transistor is 50. The input resistance of the transistor, when used in the common emitter configuration, is 1 kΩ. The peak value of the collector a.c. current for an alternating peak input voltage 0.01 V is
(1) 100 μA (2) 250 μA (3*) 500 μA (4) 800 μA

**65.** A transistor is operated in CE configuration at $V_{CC} = 2$ V such that a change in base current from 100 μA to 200 μA produces a change in the collector current from 9 mA to 16.5 mA. The value of current gain, β is :-
(1) 45 (2) 50 (3) 60 (4*) 75

**66.** The input resistance of a silicon transistor is 1 kΩ. If base current is changed by 100 μA, it causes the change in collector current by 2 μA. This transistor is used as a CE amplifier with a load resistance of 5 kn. What is the ac voltage gain of amplifier?
(1) 10 (2*) 100 (3) 500 (4) 200

**67.** For a transistor amplifier power gain and voltage gain are 7.5 and 2.5 respectively. The value of the current gain will be
(1) 0.33 (2) 0.66 (3) 0.99 (4*) 3

**68.** In the following common emitter circuit if β = 100, $V_{CE}$ = 7V, $V_{BE}$ = negligible, $R_C$ = 2kΩ then $I_B$ is




(1) 0.01 mA (2*) 0.04 mA (3) 0.02 mA (4) 0.03 mA

**69.** When a transistor is used in a circuit
(1) both junctions are forward biased
(2*) emitter base junction is forward biased and the base collector junction is reverse biased.
(3) emitter base junction is reverse biased and the base collector junction is forward biased.
(4) both junctions are reverse biased

**70.** What is the voltage gain in a common emitter amplifier where in put resistance is 3 Ω and load resistance is 24 Ω and current gain β = 6?
(1) 2.2 (2) 1.2 (3) 4.8 (4*) 48

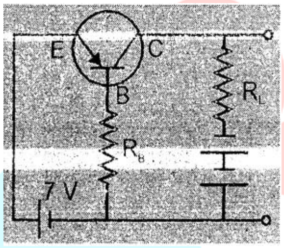
**71.** In a n-p-n transistor circuit, the co Hector current is 10 μA. If 90% of the electrons emitted reach the collector then the emitter current ($I_E$) and base current ($I_B$) are given by

(1) $I_E = 1$ mA; $I_B = 11$ mA
(2*) $I_E = 11$ mA; $I_B = 1$ mA
(3) $I_E = -1$ mA; $I_B = 9$ mA
(4) $I_E = 9$ mA; $I_B = -1$ mA

**72.** In a transistor, the base is made very thin and lightly doped with an impurity
(1) to save the transistor from heating effect
(2) to enable the emitter to emit small number of electrons and holes
(3*) to enable the collector to collect 95% of the holes or electron coming from the emitter side
(4) none of the above

**73.** In CB configuration of transistor ac current gain is $\frac{\Delta i_C}{\Delta i_E} = 0.98$, determine current gain of CE configuration
(1*) 49 (2) 98 (3) 4.9 (4) 24.5

**74.** In the given transistor circuit, the base current is 35 μA. The value of $R_B$ is ($V_{BE}$ is assumed to negligible)




(1) 100 kΩ (2) 300 kΩ (3*) 200 kΩ (4) 400 kΩ

**75.** In an n-p-n transistor
(1) holes move from emitter to base
(2*) electrons moves from emitter to base
(3) holes move from base to collector
(4) electron move from collector to base

**76.** In the study of transistor as amplifier if $\alpha = \frac{I_C}{I_E}$ and $\beta = \frac{I_C}{I_B}$ where $I_C$, $I_B$ and $I_E$ are the collector, base and emitter current, then
(1) $\beta = \frac{\alpha}{1+\alpha}$ (2*) $\beta = \frac{\alpha}{1-\alpha}$ (3) $\beta = \frac{1+\alpha}{\alpha}$ (4) $\beta = \frac{1-\alpha}{\alpha}$

**77.** In the CB mode of a transistor, when the collector voltage is changed by 0.5 volt, the collector current changes by 0.05 mA. The output resistance will be
(1*) 10 kΩ (2) 20 kΩ (3) 5 kΩ (4) 2.5 kΩ

**78.** A n-p-n transistor conducts when
(1) both collector and emitter are positive with respect to the base
(2*) collector is positive and emitter is negative with respect to the base
(3) collector is positive and emitter is at same potential as the base
(4) both collector and emitter are negative with respect to the base

**79.** In the case of constants α and β of a transistor
(1) $\alpha = \beta$ (2) $\beta < 1$ $\alpha > 1$ (3) $\alpha\beta = 1$ (4*) $\beta > 1$ $\alpha < 1$

**80.** For a transistor in a common emitter arrangement the alternating current gain β is given by

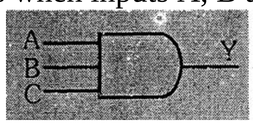
(1) $\beta = \left[\frac{\Delta I_C}{\Delta I_E}\right]_{V_{CE}}$ (2) $\beta = \left[\frac{\Delta I_B}{\Delta I_C}\right]_{V_{CE}}$ (3*) $\beta = \left[\frac{\Delta I_C}{\Delta I_B}\right]_{V_{CE}}$ (4) $\beta = \left[\frac{\Delta I_E}{\Delta I_C}\right]_{V_{CE}}$

**81.** Consider an n-p-n transistor amplifier in common emitter configuration. The current gain of the transistor is 100. If the collector current changes by 1 mA, what will be the change in emitter current?

(1*) 1.1 mA (2) 1.01 mA (3) 0.01 mA (4) 10 mA

**LOGIC GATE**

**82.** The output of the given logic gate is when inputs A, B and C are such that




(1) A = 1, B = 0, C = 1 (2) A = 1, B = 1, C = 0
(3) A = B = C = 0 (4*) A = B = C = 1

**83.** A two inputed XOR gate produces an high output only when its both inputs are

(1) same (2*) different (3) low (4) high

**84.** Which of the following Boolean expression is not correct?

(1) $\overline{\overline{A}.\overline{B}} = A + B$ (2) $\overline{\overline{A}+\overline{B}} = A.B$ (3) $\overline{\overline{A}.\overline{B}} = A.B$ (4*) $\overline{1}+\overline{1} = 1$

**85.** In Boolean algebra, which of the following is not equal to zero

(1) $A.\overline{A}$ (2) $A.0$ (3) $\overline{A+\overline{A}}$ (4*) $\overline{\overline{A}.0}$

**86.** Digital circuits can be made by repetitive use of

(1) OR gate (2) AND gate (3) NOT gate (4*) NAND gate

**87.** The truth table shown below is for which of the following gates

| A | B | Y |
|---|---|---|
| 1 | 1 | 1 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 0 | 0 | 1 |

(1*) XNOR (2) AND (3) XOR (4) NOR

**88.** When all the input of a NAND gate are connected together, the resulting circuit is

(1*) a NOT gate (2) an AND gate (3) an OR gate (4) a NOR gate

**89.** A NAND gate followed by a NOT gate is

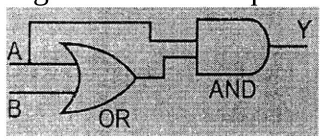
(1) an OR gate (2*) an AND gate (3) a NOR gate (4) a XOR gate

**90.** The NOR gate is logically equivalent to an OR gate followed by:-

(1) an inverter (2) a NOR gate (3) a NAND gate (4*) All of above

**91.** The output of a two input NOR gate is in state 1 when:-
(1) either input terminals is at 0 state (2) either input terminals is at 1 state
(3*) both input terminals are at 0 state (4) both input terminals are at 1 state

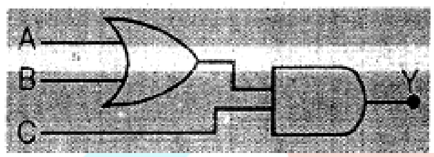
**92.** The output y of the combination of gates shown is equal to




(1*) A (2) $\bar{A}$ (3) A + B (4) AB

**93.** What would be the output of the circuit whose Boolean expression $Y = A\bar{B} + AB$ when A – 1, B = 0
(1*) 1 (2) 0 (3) both (1) and (2) (4) None of these

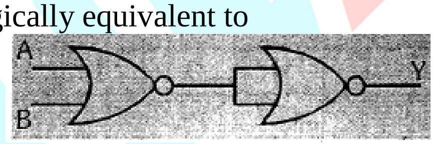
**94.** To get an output 1, the input ABC should be




(1*) 101 (2) 100 (3) 110 (4) 010

**95.** The output of 2 input gate is 1 only if its inputs are equal. It is true for :-
(1) NAND (2) AND (3*) EX-NOR (4) EX-OR

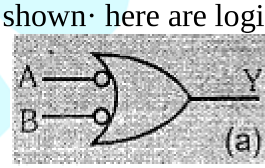
**96.** The circuit shown here is logically equivalent to

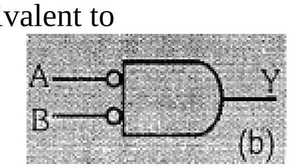



(1*) OR gate (2) AND gate (3) NOT gate (4) NAND gate

**97.** A two-input NAND gate is followed by a single-input NOR gate. This logic circuit will function as
(1*) an AND gate (2) an OR gate (3) a NOT gate (4) a NOR gate

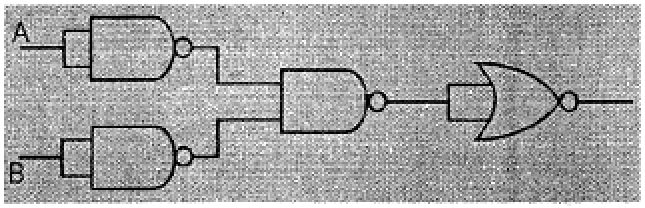
**98.** The logic symbols shown· here are logically equivalent to



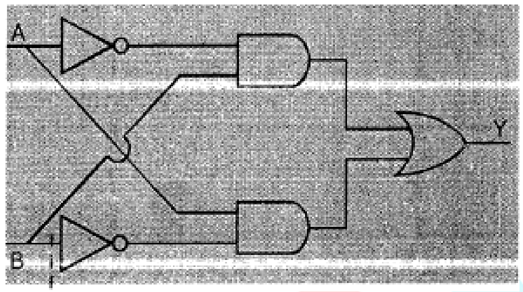

(1) (a) AND and (b) OR gate (2) (a) NOR and (b) NAND gate
(3) (a) OR and (b) AND gate (4*) (a) NAND and (b) NOR gate

**99.** The combination of the gates shown will produce



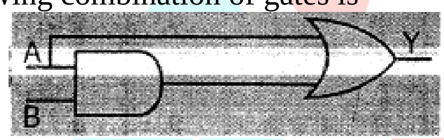

(1) OR gate (2) AND gate (3*) NOR gate (4) NAND gate

**100.** The combination of the gates shown will produce




(1) AND gate (2) NAND gate (3) NOR gate (4*) XOR gate

**101.** The truth table for the following combination of gates is




(1*)

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

(2)

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

(3)

| A | B | Y |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

(4)

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

**102.** In the Boolean algebra $\bar{A}.\bar{B}$ equals

(1) A + B (2*) $\overline{A+B}$ (3) A.B (4) $\bar{A}.B$

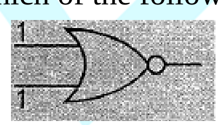
**103.** How many NOR gates are required to form NAND gate?

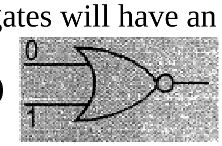
(1) 1 (2) 3 (3) 2 (4*) 4

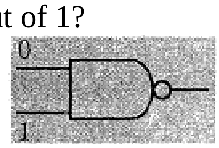
**104.** How many NAND gates are used to form AND gate?

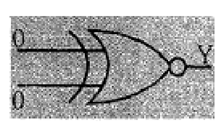
(1) 3 (2*) (3) 1 (4) 4

**105.** Which of the following gates will have an output of 1?

(a) 

(b) 

(c) 

(d) 


(1) (a) and (b) (2) (b) and (c) (3*) (c) and (d) (4) (a) and (d)

**106.** The logic behind 'NOR' gate is that it gives

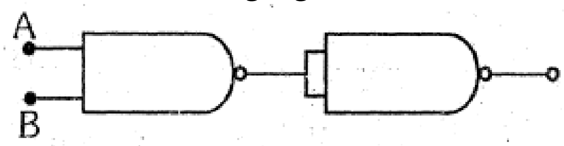
(1) high output when both inputs are high (2*) high output when both inputs are low
(3) low output when both inputs are low (4) none of these

**107.** Logic gates are the building blocks of a
(1) abacus system (2) analog system (3*) digital system (4) none of these

**108.** Boolean algebra is essentially based on
(1*) logic (2) truth (3) numbers (4) symbol

**109.** Out of the following, universal gate is
(1) NOT (2) OR (3) AND (4*) NAND

**110.** Identify the logic operation of the following logic circuit




(1) NAND (2*) AND (3) NOR (4) OR

## EXERCISE-I (Conceptual Questions) ANSWER KEY

| Que. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ans. | 2 | 2 | 3 | 2 | 2 | 4 | 3 | 2 | 1 | 2 | 3 | 1 | 4 | 1 | 1 |
| Que. | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| Ans. | 3 | 3 | 1 | 1 | 2 | 4 | 1 | 2 | 1 | 2 | 4 | 4 | 3 | 2 | 3 |
| Que. | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 |
| Ans. | 1 | 2 | 1 | 2 | 3 | 3 | 1 | 2 | 4 | 2 | 3 | 1 | 4 | 2 | 1 |
| Que. | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| Ans. | 3 | 1 | 2 | 2 | 4 | 2 | 4 | 1 | 1 | 2 | 3 | 2 | 3 | 3 | 1 |
| Que. | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 |
| Ans. | 1 | 1 | 1 | 3 | 4 | 2 | 4 | 2 | 2 | 4 | 2 | 3 | 1 | 3 | 2 |
| Que. | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| Ans. | 2 | 1 | 2 | 4 | 3 | 2 | 4 | 2 | 4 | 4 | 4 | 1 | 1 | 2 | 4 |
| Que. | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 |
| Ans. | 3 | 1 | 1 | 1 | 3 | 1 | 1 | 4 | 3 | 4 | 1 | 2 | 4 | 2 | 3 |
| Que. | 106 | 107 | 108 | 109 | 110 | | | | | | | | | | |
| Ans. | 2 | 3 | 1 | 4 | 2 | | | | | | | | | | |