MCQs Related to Article "18.1 BRIEF REVIEW OF PN-JUNCTION AND ITS CHARACTERISTICS"

PN-JUNCTION

1. A potential barrier of 0.7 v exist across the pn-junction made from:
(a) Indium (b) germinium (c) Silicon (d) gallium

2. Which type of impurity is to be added to a pure semi-conductor crystal to provide holes
(a) Monovalent (b) Trivalent (c) Pentavalent (d) Tetravalent

3. The potential difference across the depletion region of germanium at 300 K is
(a) 0.5 V (b) 0.6 V (c) 0.7 V (d) 0.3 V

4. In n-type materials, the Minority carriers are:
(a) Free electrons (b) Holes (c) Protons (d) Meson

5. Diode is a device which has _____ terminals.
(a) One (b) Two (c) Three (d) Four

BIASING

6. When a pn-junction is reverse biased, the depletion region is:
(a) Widened (b) Narrowed (c) Normal (d) No change

7. The forward current through a semiconductor diode circuit is due to
(a) Minority carriers (b) Majority carriers (c) Holes (d) Electrons

8. The reverse current in a p-n junction flows due to
(a) Minority carriers (b) Majority carriers (c) Holes (d) Electrons

9. The reverse current through pn-junction is:
(a) Zero (b)Less than forward current (c) Greater than forward current

10. The reverse or leakage current of the diode is of the order of
(a) Microampere (b) Milli-ampere (c) Both (d) None of these

11. Pulsating DC can be made smooth by using a circuit known as:
(a) Filter (b) Tank (c) Acceptor (d) Rejecter

MCQ # 1: (c)	MCQ # 2: (b)	MCQ # 3: (d)	MCQ # 4: (b)	MCQ # 5: (b)	MCQ # 6: (a)
MCQ # 7: (b)	MCQ # 8: (a)	MCQ # 9: (b)	MCQ # 10: (a)	MCQ # 11: (a)	

MCQs Related to Article "18.2 RECTIFICATION"

1. AC can be converted to DC by:
(a) Transformer (b) Generator (c) Motor (d) Rectifier

2. The process in which only half cycle of AC signal is converted to DC is called:
(a) Filtration (b) Half wave Rectification (c) Full wave Rectification

3. The number of diodes in a half wave rectifier:
(a) 2 (b) 3 (c) 4 (d) 1

4. The process in which complete cycle of AC signal is converted to DC is called:
(a) Filtration (b) Half wave Rectification (c) Full wave Rectification

5. The number of diodes in a bridge rectifier is:
(a) 2 (b) 3 (c) 4 (d) 1

6. In a full wave rectifier, the diodes conducts during:
(a) Both halves of the input cycle (b) A portion of the positive half of the input cycle
(c) One half of the input cycle (d) A portion of the negative half of the input cycle

MCQ # 1: (d)	MCQ # 2: (b)	MCQ # 3: (d)	MCQ # 4: (c)	MCQ # 5: (c)	MCQ # 6: (a)

MCQs Related to Article "18.3 SPECIALLY DESIGNED P-N JUNCTIONS"

1. The color of light emitted by led depends on
(a) Its forward biased (b) Its reversed biased
(c) The amount of forward current (d) Type of semi-conductor material used

2. A LED emits lights only when it is:
(a) Forward biased (b) Reverse biased (c) Un biased (d) None of these

3. A pn junction photodiode is
(a) Operated in forward direction (b) Operated in reversed direction
(c) A very fast photo detector (d) Dependent on thermally generated carriers

4. A photo – diode can switch its current on and off in
(a) Milli seconds (b) Micro seconds (c) Nano seconds (d) None

5. A sensor of light is:
(a) Transistor (b) LED (c) Photo Diode (d) None of these

6. In photovoltaic cell, current is directly proportional to:
(a) Interference of light (b) Intensity of light (c) Frequency of light (d) Energy

MCQ # 1: (d)	MCQ # 2: (a)	MCQ # 3: (b)	MCQ # 4: (c)	MCQ # 5: (c)	MCQ # 6: (b)

MCQs Related to Article "18.4 TRANSISTOR"

1. The central region of a transistor is called:
(a) Collector (b) Emitter (c) Base (d) Neutral

2. The term transistor means:
(a) Transfer of current (b) Transfer of heat (c) Transfer of heat (d) Transfer of voltage

3. The transistor are made from
(a) Plastic (b) Metals (c) Insulators (d) Doped semiconductors

4. Transistor has:
(a) 2 regions (b) 3 regions (c) 4 regions (d) 1 region

5. Transistor is a device which has _____ terminals.
(a) One (b) Two (c) Three (d) Four

6. Base of the transistor is very thin of the order of:
(a) $10^{-2}\ m$ (b) $10^{-4}\ m$ (c) $10^{-6}\ m$ (d) $10^{-8}\ m$

7. The SI unit of current gain is:
(a) Ampere (b) Volt (c) Coulomb (d) No unit

MCQ # 1: (b)	MCQ # 2: (c)	MCQ # 3: (d)	MCQ # 4: (b)	MCQ # 5: (c)	MCQ # 6: (c)	MCQ # 7: (d)

MCQs Related to Article "18.5 TRANSISTOR AS AN AMPLIFIER"

1. A device which converts low voltage or current to high voltage or current is called:
(a) Transformer (b) AC-generator (c) Rectifier (d) Amplifier

2. For typical transistor as an amplifier, the voltage gain:
(a) $\frac{\Delta V_o}{\Delta V_{in}} = \frac{\beta R_c}{r_{ie}}$ (b) $\frac{\Delta V_o}{\Delta V_{in}} = \beta$ (c) $\frac{\Delta V_o}{\Delta V_{in}} = \frac{\beta r_{ie}}{R_c}$ (d) None of these

3. An expression for current gain of a transistor is given by:
(a) $\beta = \frac{I_B}{I_C}$ (b) $\beta = I_B - I_C$ (c) $\beta = I_B + I_C$ (d) $\beta = \frac{I_C}{I_B}$

4. The gain of transistor amplifier depends upon:
(a) Resistance connected with emitter (b) Resistance connected with collector
(c) Resistance connected with base (d) None of these

5. Which of the following is true for a transistor:
(a) $I_E = I_B - I_C$ (b) $I_E = I_C - I_B$ (c) $I_E = I_B + I_C$ (d) $I_E = \frac{I_B}{I_C}$

6. Transistor can be used as
(a) Oscillators (b) Switches (c) Memory unit (d) All of them

MCQ # 1: (d)	MCQ # 2: (a)	MCQ # 3: (d)	MCQ # 4: (b)	MCQ # 5: (c)	MCQ # 6: (d)

MCQs Related to Article "18.7 OPERATIONAL AMPLIFIERS"

1. A complete amplifier circuit made on a silicon chip and enclosed in a small capsule is called:
(a) Diode (b) (c) Resistor (d) Operational amplifier

2. The open loop gain of an operational amplifier is of the order of
(a) 10^8 (b) 10^5 (c) 10^2 (d) 10^{-3}

3. The resistance between + ive and – ive inputs of op – amplifier is
(a) 100 Ω (b) 1000 Ω (c) 10^6 Ω (d) None of these

4. Output resistance of an op-amp is
(a) High (b) Zero (c) Low (d) Equal to input resistance

MCQ # 1: (d)	MCQ # 2: (b)	MCQ # 3: (c)	MCQ # 4: (c)

MCQs Related to Article "18.8 OP-AMP AS INVERTING AMPLIFIER"

1. An op-amp will act as an inverting amplifier, when input signal is connected to:
(a) Inverting Terminal (b) Non-Inverting Terminal (c) Output Terminal

2. The gain G of inverting operational amplifier is:
(a) $G = -\frac{R_2}{R_1}$ (b) $G = 1 + \frac{R_2}{R_1}$ (c) $G = \frac{R_2}{R_1}$ (d) $G = 1 - \frac{R_2}{R_1}$

3. The gain of inverting op-amp depends on
(a) Internal Resistance (b) External Resistances (c) Potential Difference (d) Current

4. The negative sign in the expression of voltage gain for an inverting amplifier indicates that output signal is:
(a) In-phase with input signal (b) Out of phase with input signal
(c) Perpendicular to input signal (d) None of these

MCQ # 1: (a)	MCQ # 2: (a)	MCQ # 3: (b)	MCQ # 4: (b)

MCQs Related to Article "18.9 OP-AMP AS NON-INVERTING AMPLIFIER"

1. The gain G of non-inverting operational amplifier is:
(a) $G = -\frac{R_2}{R_1}$ (b) $G = 1 + \frac{R_2}{R_1}$ (c) $G = \frac{R_2}{R_1}$ (d) $G = 1 - \frac{R_2}{R_1}$

2. For non-inverting amplifier, if $R_1 = \infty\ \Omega$ and $R_1 = 0\ \Omega$, then the gain of amplifier is
(a) -1 (b) 0 (c) 1 (d) ∞

3. An operational amplifier will act as a non-inverting amplifier when alternaing signal is applied at:
(a) Inverting terminal (b) Non-Inverting terminal (c) Output resistance (d) Both a & b

4. The gain of non-inverting op-amp depends on
(a) Internal Resistance (b) External Resistances (c) Potential Difference (d) Current

5. The positive sign in the expression of voltage gain for an inverting amplifier indicates that output signal is:
(a) In-phase with input signal (b) Out of phase with input signal
(c) Perpendicular to input signal (d) None of these

MCQ # 1: (b)	MCQ # 2: (c)	MCQ # 3: (b)	MCQ # 4: (b)	MCQ # 5: (a)

MCQs Related to Article "18.10 OP-AMP AS A COMPARATOR"

1. The conduction to saturation of an operational amplifier help us to:
(a) Comparing two resistors (b) Comparing two voltages (c) Comparing two currents

2. When op-amp is saturated, then
(a) $V_o > V_{CC}$ (b) $V_o < V_{CC}$ (c) $V_o \neq V_{CC}$ (d) $V_o = V_{CC}$

MCQ # 1: (b)	MCQ # 2: (c)

MCQs Related to Article "18.11 COMPARATOR AS A NIGHT SWITCH"

1. The automatic working of street lights is due to
(a) Inductor (b) Capacitor (c) Comparator (d) Rectifier

2. LDR is abbreviated for:
(a) Light dependent resistor (b) light depositing resistor
(c) Light doped resistor (d) all of these

3. The use of LDR is in the circuit of:
(a) Night Switch (b) Logic Gates (c) Rectifier (d) Oscillator

4. The value of LDR depends upon:
(a) Intensity of sound (b) Intensity of heat (c) Intensity of light (d) Current

MCQ # 1: (c)	MCQ # 2: (a)	MCQ # 3: (a)	MCQ # 4: (c)

MCQs Related to Article "18.12 DIGITAL SYSTEMS"

1. A system which deals with quantities or variables which have only two discrete values or states is known as
(a) Octa system (b) Hexa system (c) Digital System (d) Decimal System

2. Which is not a basic logic operation:
(a) OR operation (b) AND operation (c) NOT operation (d) NAND operation

3. The electronic circuits which implement the various logic operations are known as
(a) Digital gates (b) Logic gate (c) Voltage operated gate (d) All of them

4. In describing functions of digital systems, lighted bulb will be described as
(a) Infinity (b) 0 (c) 1 (d) None of these

MCQ # 1: (c)	MCQ # 2: (d)	MCQ # 3: (b)	MCQ # 4: (c)

MCQs Related to Article "18.13 FUNDAMENTAL LOGIC GATES"

1. Truth table of logic function:
(a) Summarizes output values (b) Tabulate all input values
(c) Display all input and output possibilities (d) is not based on logic algebra

2. The boolean expression X = A + B represents the logic operation of
(a) NAND gate (b) OR gate (c) NOR gate (d) NOT gate

3. The output of a two inputs OR gate is 0 only when its
(a) Both inputs are 0 (b) Either input is 1 (c) Both inputs are 1 (d) Either input is zero

4. The output of AND gate is 1 when
(a) Both inputs are at 0 (b) either one input is at 1
(c) Both inputs are at 1 (d) none of these

5. The only function of a NOT gate is to
(a) Stop a signal (b) Re-complement a signal (c) Invert an input signal

6. NOT gate has only
(a) One input (b) Two inputs (c) Many inputs (d) None

7. The term invertor is used for:
(a) NOR Gate (b) NAND Gate (c) NOT Gate (d) OR Gate

MCQ # 1: (c)	MCQ # 2: (b)	MCQ # 3: (a)	MCQ # 4: (c)	MCQ # 5: (c)	MCQ # 6: (a)	MCQ # 7: (c)

MCQs Related to Article "18.14 OTHER LOGIC GATES"

1. In NOR gate 1 + 1 = _____
(a) 0 (b) 2 (c) 1 (d) 3

2. $X = \overline{A + B}$ is the mathematical notation for:
(a) OR gate (b) AND gate (c) NOR gate (d) NAND gate

3. NAND gate with two inputs a and b has output 0, if
(a) A is 0 (b) b is 0 (c) both a and b are 0 (d) both a and b are 1

4. NAND gate is a combination
(a) AND gate and NOT gate (b) AND gate and OR gate
(c) OR gate and NOT gate (d) NOT gate and NOT gate

5. An XOR gate produces an positive logic output only when its two inputs are
(a) High (b) Low (c) Different (d) Same

6. Temperature, pressure etc are converted into electronic information by devices called
(a) LEDs (b) Sensors (c) Vacuum tubes (d) None

MCQ # 1: (a)	**MCQ # 2: (c)**	**MCQ # 3: (d)**	**MCQ # 4: (a)**	**MCQ # 5: (c)**	**MCQ # 6: (b)**