



# SMART TEST SERIES

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|                |   |        |  |        |               |
|----------------|---|--------|--|--------|---------------|
| Name:          |   | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Mathematics-12                              | Date:  |  | Time:  |               |
| Questions Type | Type 10 - Short Test (No Choice) - Marks=45 |        |  |        |               |
| Test Syllabus: | Unit-5,                                     |        |  |        |               |

## Q.1 Circle the correct answer.

(11x1=11)

- $ax + b < c$  is:  
(A) Linear inequality (B) Identity (C) Equation (D) Not inequality
- (2,1) is in the solution of inequality:  
(A)  $2x + y > 0$  (B)  $x - y > 1$  (C)  $3x + 5y < 7$  (D)  $2x + y \geq 6$
- $2x + 3y < 5$  is satisfied by:  
(A) (1, 1) (B) (1, 2) (C) (2, 3) (D) (-1, 1)
- (1,3) is in the solution:  
(A)  $x + y > 0$  (B)  $x + y < 0$  (C)  $x + y = 2$  (D)  $x - y = 0$
- $ax \leq b$  is an inequality of one variable.  
(A) one variable (B) three variable (C) two variable (D) None of these
- A vertical line divides the plane into ----- half planes.  
(A) upper and lower (B) many (C) left and right (D) None of these
- $ax + b \leq c$  is an inequality of one variable.  
(A) one variable (B) three variable (C) two variable (D) None of these
- The linear equation ----- is called the associated or corresponding equation of the inequality  $ax + by > c$ .  
(A)  $ax + by \geq c$  (B)  $ax + by = c$  (C)  $ax + by \leq c$  (D)  $ax + by < c$
- The inequality  $y \geq b$  is the closed half plane to the ----- of the boundary line  $y = b$ .  
(A) above (B) left (C) below (D) right
- A function which is to be maximized or minimized is called:  
(A) Subjective function (B) Qualitative function (C) Objective function (D) Quantitative function
- The region of the graph  $ax + by \leq c$  is called ----- half plane.  
(A) open (B) open as well as closed (C) closed (D) None of these

## Q.2 Write short answers of the following questions.

(6x2=12)

- Describe Solution Region.
- Graph the solution set of linear inequalities xy-plane  $x + y \geq 5$  ;  $-y + x \leq 1$
- Define decision variables.
- Define feasible solution set.
- Find the corner point of inequalities:  $x + y \leq 5$ ,  $-2x + y \leq 2$ ,  $x \geq 0$ ,  $y \leq 0$
- Define linear programming.

## Q.3 Write short answers of the following questions.

(6x2=12)

- Define the vertex of the solution region.
- Shade the feasible region of  $4x - 3y \leq 12$ .
- Define half planes and boundary fo half planes.
- Define Feasible Region.
- Graph the feasible region of the following inequality [Math Processing Error].
- State the theorem of linear programming.

## NOTE: Attempt a long question.

(5+5=10)

- Graph the solution region of the following system of linear inequalities by shading:  $3x + 2y \geq 3$  ;  $x + 2y \leq 9$
- Graph the solution region of the following system of linear inequalities by shading:  $2x + y \leq 10$  ;  $x + y \leq 7$

# MCQs Ans Key.

Q:1 (A)

Q:2 (A)

Q:3 (D)

Q:4 (A)

Q:5 (A)

Q:6 (C)

Q:7 (A)

Q:8 (B)

Q:9 (A)

Q:10 (C)

Q:11 (C)



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| Subject:       | Mathematics-12                              | Date:  |  | Time:  |               |
| Questions Type | Type 10 - Short Test (No Choice) - Marks=45 |        |  |        |               |
| Test Syllabus: | Unit-5,                                     |        |  |        |               |

## Q.1 Circle the correct answer.

(11x1=11)

- The associated equation of inequality  $x + 2y < 6$  is:  
(A)  $x + 2y = 6$  (B)  $x - 2y = 6$  (C)  $x + 2y = -6$  (D)  $x - 2y = -6$
- Solution of inequality  $x + 2y < 6$  is:  
(A) (1,1) (B) (1,3) (C) (1,4) (D) (1,5)
- The region of the graph  $ax + by = c$  is called the ----- half planes  $ax + by > c$  and  $ax + by < c$ .  
(A) open (B) boundary of (C) closed (D) None of these
- $x = a$  is a vertical line perpendicular to -----.  
(A) x-axis (B) x-axis may be (C) y-axis (D) None of these
- The inequality  $x > a$  is the open half plane to the ----- of the boundary line  $x = a$ .  
(A) above (B) left (C) below (D) right
- The graph of  $2x + y \leq 2$  is the closed half plane the region is ----- the origin side of  $2x + y = 2$ .  
(A) at (B) not on (C) on (D) None of these
- The operation ----- by a positive constant to each side of inequality will not effect the order (or sense) of inequality.  
(A) adding (B) subtracting (C) dividing (D) None of these
- There are ----- ordered pairs that satisfy the inequality  $ax + by \geq c$ .  
(A) finitely many (B) two (C) infinitely many (D) None of these
- The inequality  $y \leq b$  is the closed half plane to the ----- of the boundary line  $y = b$ .  
(A) above (B) left (C) below (D) right
- The graph of linear equation of the form  $ax + by = c$  is a line, which divides the plane into ----- disjoint regions, where  $a, b$  and  $c$  are constants and  $a, b$  are not both zero.  
(A) one (B) three (C) two (D) None of these
- The region of the graph  $ax + by \leq c$  is called ----- half plane.  
(A) open (B) open as well as closed (C) closed (D) None of these

## Q.2 Write short answers of the following questions.

(6x2=12)

- Describe Solution Region.
- Define the vertex of the solution region.
- Graph the solution set of linear inequalities xy-plane  $x + y \geq 5$ ;  $-y + x \leq 1$
- Shade the feasible region of  $4x - 3y \leq 12$ .
- Define feasible solution set.
- Define convex and feasible region.

## Q.3 Write short answers of the following questions.

(6x2=12)

- Graph the solution region of linear inequalities.  $x + y \leq 5$ ,  $y - 2x \leq 2$ .
- Define half planes and boundary fo half planes.
- Define Feasible Region.
- Find the corner point of inequalities:  $x + y \leq 5$ ,  $-2x + y \leq 2$ ,  $x \geq 0$ ,  $y \leq 0$
- Define objective function.
- State the theorem of linear programming.

## NOTE: Attempt a long question.

(5+5=10)

- Graph the feasible region also find the corner points:  $3x + 7y \leq 21$ ;  $x - y \leq 3$ ;  $x \geq 0$ ;  $y \geq 0$
- Graph the feasible region of the following system of linear inequalities and find the corner points in each case:  $x + 3y \leq 15$ ;  $2x + y \leq 12$ ;  $4x + 3y \leq 24$ ;  $x \geq 0$ ,  $y \geq 0$

# MCQs Ans Key.

Q:1 (A)

Q:2 (A)

Q:3 (B)

Q:4 (A)

Q:5 (D)

Q:6 (C)

Q:7 (C)

Q:8 (C)

Q:9 (C)

Q:10 (C)

Q:11 (C)



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| Name:          |  | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Mathematics-12                             | Date:  |  | Time:  |               |
| Questions Type | Type 7 - Short Test (No Choice) - Marks=30 |        |  |        |               |
| Test Syllabus: | Unit-5,                                    |        |  |        |               |

## Q.1 Circle the Correct Answers.

(6x1=6)

- $ax + by < c$  is a linear inequality in:  
(A) Four variables (B) Three variables (C) One variable (D) Two variables
- $x = -1$  is solution of:  
(A)  $x + 4 < 0$  (B)  $2x + 3 < 0$  (C)  $x + 4 > 0$  (D)  $x > 0$
- The graph of linear equation of the form  $ax + by = c$  is a -----, where a, b and c are constants and a, b are not both zero.  
(A) curve (B) circle (C) straight line (D) None of these
- The graph of  $2x + y < 2$  is the open half plane the region is ----- the origin side of  $2x + y = 2$ .  
(A) at (B) not on (C) on (D) None of these
- The feasible region is ----- if it can easily be enclosed within a circle.  
(A) bounded (B) exist (C) unbounded (D) None of these
- A point does not lie in the feasible region is ----- corner point of the feasible region.  
(A) a (B) may be a (C) not a (D) None of these

## Q.2 Write short answers of the following questions.

(7x2=14)

- Describe Solution Region.
- Graph the solution set of linear inequalities xy-plane  $x + y \geq 5$  ;  $-y + x \leq 1$
- Shade the feasible region of  $4x - 3y \leq 12$ .
- Define convex region.
- Find the corner point of inequalities:  $x + y \leq 5$ ,  $-2x + y \leq 2$ ,  $x \geq 0$ ,  $y \leq 0$
- Define linear programming.
- Define objective function.

## NOTE: Attempt the long question.

(5+5=10)

- Graph the solution region of the following system of linear inequalities by shading:  $3x + 2y \geq 3$  ;  $x + 2y \leq 9$
- Maximize the function defined as  $f(x, y) = 2x + 3y$  subject to the constraints:  $2x + y \leq 8$  ;  $x + 2y \leq 14$  ;  $x \geq 0$  ;  $y \geq 0$

# MCQs Ans Key.

Q:1 (D)

Q:2 (C)

Q:3 (C)

Q:4 (C)

Q:5 (A)

Q:6 (C)



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|                |  |        |  |        |               |
|----------------|--|--------|--|--------|---------------|
| Name:          |  | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Mathematics-12                             | Date:  |  | Time:  |               |
| Questions Type | Type 7 - Short Test (No Choice) - Marks=30 |        |  |        |               |
| Test Syllabus: | Unit-5,                                    |        |  |        |               |

## Q.1 Circle the Correct Answers.

(6x1=6)

- $ax + b < c$  is:  
(A) Linear inequality (B) Identity (C) Equation (D) Not inequality
- $ax + by < c$  is a linear inequality in:  
(A) Four variables (B) Three variables (C) One variable (D) Two variables
- The graph of linear equation of the form  $ax + by = c$  is a -----, where  $a$ ,  $b$  and  $c$  are constants and  $a$ ,  $b$  are not both zero.  
(A) curve (B) circle (C) straight line (D) None of these
- $x = c$  is a vertical line parallel to -----.  
(A) x-axis (B) y-axis may be (C) y-axis (D) None of these
- If  $3x + 2y \leq 6$  point does not satisfy:  
(A) (1,0) (B) (0,1) (C) (0,0) (D) (3,2)
- A point does not lie in the feasible region is ----- corner point of the feasible region.  
(A) a (B) may be a (C) not a (D) None of these

## Q.2 Write short answers of the following questions.

(7x2=14)

- Describe Solution Region.
- Define the vertex of the solution region.
- Define half planes and boundary of half planes.
- Define feasible solution set.
- Graph the feasible region of the following inequality  $2x - 3y \leq 6$ .
- Define convex and feasible region.
- Define linear programming.

### NOTE: Attempt the long question.

(5+5=10)

- Graph the solution region of the following system of linear inequalities by shading:  $3x + 2y \geq 3$ ;  $x + 2y \leq 9$
- Minimize  $f(x, y) = 2x + y$  subject to the constraints.  $x + y \geq 3$ ;  $7x + 5y \leq 35$ ;  $x \geq 0$ ;  $y \geq 0$

# MCQs Ans Key.

Q:1 (A)

Q:2 (D)

Q:3 (C)

Q:4 (C)

Q:5 (D)

Q:6 (C)



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|                |   |        |  |        |               |
|----------------|---|--------|--|--------|---------------|
| Name:          |   | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Physics-12                                  | Date:  |  | Time:  |               |
| Questions Type | Type 10 - Short Test (No Choice) - Marks=35 |        |  |        |               |
| Test Syllabus: | Unit-16,                                    |        |  |        |               |

## Q.1 Circle the Correct Answers.

(9x1=9)

- Root mean square value of voltage is given by:  
(A)  $V_{rms} = 2V_o$  (B)  $V_{rms} = \sqrt{2}V_o$  (C)  $V_{rms} = \frac{V_o}{\sqrt{2}}$  (D)  $V_{rms} = \frac{V_o}{2}$
- An A.C voltmeter reads 220V, its peak value will be:  
(A) 225 V (B) 340 V (C) 311.12 V (D) 300 V
- The basic circuit elements in a D.C circuits is:  
(A) Resistor (B) Inductor (C) Capacitor (D) Transistor
- In pure capacitor A.C circuit, the current I and charge q are:  
(A) In phase (B) Out of phase (C) Parallel to each other (D) None of above
- When an inductor comes close to a metallic object, its inductance is:  
(A) Decreased (B) Increased (C) Becomes Half (D) Becomes 4 times
- The combined effect of resistance and reactance is known as:  
(A) Inductance (B) Conductance (C) Resistance (D) Impedance
- The impedance Z can be expressed as:  
(A)  $Z = \frac{V_{rms}}{I_{rms}}$  (B)  $Z = \frac{I_{rms}}{V_{rms}}$  (C)  $Z = I + V$  (D)  $Z = I - V$
- When 10V are applied to an A.C circuit, the current flowing in it is 100 mA. Its impedance is:  
(A)  $100 \Omega$  (B)  $10 \Omega$  (C)  $1000 \Omega$  (D)  $1 \Omega$
- At resonance frequency, the impedance of RLC series circuit is:  
(A) Maximum (B) Minimum (C) Zero (D) Infinite

## Q.2 Write short answers of the following questions.

(5x2=10)

- What do you mean by phase lag and phase lead?
- Which quantity, voltage or current leads in a capacitor and by how much angle?
- Define reactance of a capacitor. Also write down its formula.
- A  $100 \mu\text{F}$  capacitor is connected to an alternating voltage of 24 V and frequency 50 Hz. Calculate the current in the circuit.
- In an R-L circuit with current lead or lag the voltage Explain by vector diagram.

## NOTE: Attempt the following questions.

(8x2=16)

- Explain the passage of A.C through a capacitor in detail.
- An alternating current is represented by the equation  $i = 20 \sin 100 \pi t$ . Compute its frequency and the maximum and rms values of current.
- Describe the behavior of RC and RL series circuits with an A.C source. Calculate the impedance of both the circuit by drawing their impedance diagram.
- Find the capacitance required to construct a resonance circuit of frequency 1000 kHz with an inductor of 5 mH.

# MCQs Ans Key.

Q:1 (C)

Q:2 (C)

Q:3 (A)

Q:4 (A)

Q:5 (A)

Q:6 (D)

Q:7 (A)

Q:8 (A)

Q:9 (B)



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|                |   |        |  |        |               |
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| Name:          |   | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Physics-12                                  | Date:  |  | Time:  |               |
| Questions Type | Type 10 - Short Test (No Choice) - Marks=35 |        |  |        |               |
| Test Syllabus: | Unit-16,                                    |        |  |        |               |

## Q.1 Circle the Correct Answers.

(9x1=9)

- The output voltage of an A.C generator at time  $t = \frac{T}{4}$  is given by:  
(A)  $V = -V_o$  (B)  $V = V_o$  (C)  $V = 0$  (D)  $V = \frac{V_o}{4}$
- The basic circuit elements in a D.C circuits is:  
(A) Resistor (B) Inductor (C) Capacitor (D) Transistor
- In the capacitive circuit of A.C quantity when  $q = 0$  the slope of q-t curve is:  
(A) Maximum (B) Minimum (C) Zero (D) Negative
- When an inductor comes close to a metallic object, its inductance is:  
(A) Decreased (B) Increased (C) Becomes Half (D) Becomes 4 times
- When 10V are applied to an A.C circuit, the current flowing in it is 100 mA. Its impedance is:  
(A)  $100\ \Omega$  (B)  $10\ \Omega$  (C)  $1000\ \Omega$  (D)  $1\ \Omega$
- The impedance of R – L series circuit is:  
(A)  $Z = \sqrt{R^2 + X_L^2}$  (B)  $Z = \sqrt{R^2 + X_C^2}$  (C)  $Z = \sqrt{R^2 + X_L}$  (D)  $Z = R$
- At resonance frequency, the impedance of RLC series circuit is:  
(A) Zero (B) Minimum (C) Maximum (D) Moderate
- In RLC series circuit the phase angle between  $X_L$  and  $X_C$  is:  
(A)  $\tan^{-1} \frac{\omega C}{R}$  (B)  $\tan^{-1} \frac{\omega}{RC}$  (C)  $\tan^{-1} \frac{\omega Z}{RC}$  (D)  $\pi\ rad$
- In three phase voltage across any two lines is about:  
(A) 220 V (B) 230 V (C) 400 V (D) 430 V

## Q.2 Write short answers of the following questions.

(5x2=10)

- A circuit contains an iron cored inductor, a switch and a D.C source arranged in series. The switch is closed and after an interval re-opened. Explain why a spark jumps across the switch contacts.
- What do you mean by phase lag and phase lead?
- What is difference between A.C circuit and D.C circuit?
- Define reactance of an inductor and write its formula.
- Write four properties of parallel resonance circuit.

## NOTE: Attempt the following questions.

(8x2=16)

- Explain A.C through resistor in detail.
  - A sinusoidal AC has a maximum value of 15A. what are its rms value? If the time is recorded from the instant the current is zero and is becoming positive, what is the instantaneous values of current after  $\frac{1}{300}$  s, given the frequency is 50Hz?
- What is an inductor? Derive the relation for energy stored in an inductor.
  - An iron core coil of 2.0 H and  $50\ \Omega$  is placed in series with a resistance of  $450\ \Omega$ . An A.C. Supply of 100 V, 50 Hz is connected across the circuit. Find (i) the current flowing in the coil, (ii) phase angle between the current and voltage.

# MCQs Ans Key.

Q:1 (B)

Q:2 (A)

Q:3 (A)

Q:4 (A)

Q:5 (A)

Q:6 (A)

Q:7 (B)

Q:8 (A)

Q:9 (C)



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| Subject:       | Physics-12                                  | Date:  |  | Time:  |               |
| Questions Type | Type 12 - Short Test (No Choice) - Marks=45 |        |  |        |               |
| Test Syllabus: | Unit-16,                                    |        |  |        |               |

## Q.1 Circle the correct answer.

(13x1=13)

- The waveform of alternating voltage is a:  
(A) Cotangent curve (B) Cosine curve (C) Tangent curve (D) Sine curve
- The peak value of A.C source is 20 A, then its rms value will be:  
(A) 14.1 A (B) 10 A (C) 20 A (D) 28.2 A
- In the capacitive circuit of A.C quantity when  $q = 0$  the slope of q-t curve is:  
(A) Maximum (B) Minimum (C) Zero (D) Negative
- The reactance of capacitor is equal to:  
(A)  $\omega C$  (B)  $\frac{\omega}{C}$  (C)  $\frac{C}{\omega}$  (D)  $\frac{1}{\omega C}$
- 100  $\mu\text{F}$  capacitor is connects to an AC-voltage of 24 V and frequency 50Hz. The reactance of the capacitor is:  
(A) 30.8 $\Omega$  (B) 31.8 $\Omega$  (C) 34.8 $\Omega$  (D) 40 $\Omega$
- If the frequency of A.C supplied is doubled then the capacitive reactance becomes:  
(A) Half (B) Two times (C) Four times (D) One fourth
- The reactance of an inductor:  
(A)  $\omega L$  (B)  $\frac{1}{\omega L}$  (C)  $\frac{\omega}{L}$  (D)  $\frac{L}{\omega}$
- The expression  $P = VI$  holds only when current and voltage are:  
(A) In phase (B) Out of phase (C) At right angle to each other (D) At angle of  $120^\circ$
- Which consumes small power?  
(A) Inductor (B) Resistor (C) Motor (D) All of them
- Inductive reactance of an inductor is:  
(A)  $X_L = \pi fL$  (B)  $X_L = 4\pi fL$  (C)  $X_L = 2\pi fL$  (D)  $X_L = 2\pi L$
- In a resonance circuit of frequency 1000 kHz with inductor of 5 mH, the capacitance will be:  
(A) 10.1 pF (B) 8.16 pF (C) 3.3 pF (D) 5.09 pF
- In RLC series resonance circuit, at resonance frequency, impedance Z is:  
(A)  $\sqrt{R^2 + X_L^2}$  (B) R (C)  $\sqrt{R^2 + X_C^2}$  (D)  $X_L$
- In R-L-C circuit the energy is dissipated in:  
(A) R only (B) R and L (C) R and C (D) R, L and C

## Q.2 Write short answers of the following questions.

(6x2=12)

- What is the main reason for the world wide use of A.C?
- Define peak to peak value of A.C voltage.
- What is difference between A.C circuit and D.C circuit?
- How does doubling the frequency affect the reactance of a capacitor?
- How the reception of a particular radio station is selected on your radio set?
- Write some/main advantages of three phase A.C supply.

## Q.3 Write short answers of the following questions.

(6x2=12)

- Define peak value and peak to peak value of A.C voltage?
- Define root mean square value of A.C voltage.
- Define reactance of an inductor and write its formula.
- What is meant by inductive and capacitive reactance.
- In an R-L circuit with current lead or lag the voltage Explain by vector diagram.
- Write down two advantages of the phase A.C supply.

## NOTE: Attempt a long question.

(5+3=8)

4(a) What is R-C series circuit? Find the impedance of R-C series circuit.

(b) A circuit has an inductance of  $1/\pi H$  and resistance of 2000  $\Omega$ . A 50 Hz A.C. is supplied to it. Calculate the reactance and impedance offered by the circuit.

# MCQs Ans Key.

Q:1 (D)

Q:2 (A)

Q:3 (A)

Q:4 (D)

Q:5 (B)

Q:6 (A)

Q:7 (A)

Q:8 (A)

Q:9 (A)

Q:10 (C)

Q:11 (D)

Q:12 (B)

Q:13 (A)



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| Subject:       | Physics-12                                  | Date:  |  | Time:  |               |
| Questions Type | Type 12 - Short Test (No Choice) - Marks=45 |        |  |        |               |
| Test Syllabus: | Unit-16,                                    |        |  |        |               |

## Q.1 Circle the correct answer.

(13x1=13)

- Main reason for world wide use of A.C is:  
(A) It is cheaper (B) Transmitted (C) Both A and B (D) Reaches in short time.
- The main use of A.C is:  
(A) minimum line losses. (B) long distance transmission.  
(C) Stepping up to required voltage only. (D) Stepping down to required voltage only.
- Average value of current and voltage over a complete cycle is:  
(A) Positive (B) Negative (C) Zero (D) Infinite
- The basic circuit elements in a D.C circuits is:  
(A) Resistor (B) Inductor (C) Capacitor (D) Transistor
- In case of AC through resistor V and I are:  
(A) At  $0^\circ$  with each other (B) At  $90^\circ$  with each other (C) At  $180^\circ$  with each other  
(D) At  $270^\circ$  with each other
- The reactance of capacitor is equal to:  
(A)  $\omega C$  (B)  $\frac{\omega}{C}$  (C)  $\frac{C}{\omega}$  (D)  $\frac{1}{\omega C}$
- A.C through inductor, the applied voltage:  
(A) Leads the current by  $\frac{\pi}{2}$  (B) Leads the voltage  $\frac{\pi}{2}$  (C) And current are in phase  
(D) And current are out of phase  $180^\circ$
- When an inductor comes close to a metallic object, its inductance is:  
(A) Decreased (B) Increased (C) Becomes Half (D) Becomes 4 times
- The expression  $P = VI$  holds only when current and voltage are:  
(A) In phase (B) Out of phase (C) At right angle to each other (D) At angle of  $120^\circ$
- Relation for resonance frequency of RLC series circuit is:  
(A)  $\frac{1}{\sqrt{2\pi LC}}$  (B)  $\frac{2\pi}{\sqrt{LC}}$  (C)  $\frac{1}{2\pi\sqrt{LC}}$  (D)  $\frac{1}{\sqrt{LC}}$
- The power factor of RL-series circuit is:  
(A) 0 (B) 1 (C) Less than 1 (D) More than one
- The unit of impedance is:  
(A) Volt (B) Ohm (C) Farad (D) Watt
- Electro magnetic waves are produced by:  
(A) Rest charge (B) Moving charge (C) Vibrating charge (D) Positive charge

## Q.2 Write short answers of the following questions.

(6x2=12)

- What is the main reason for the world wide use of A.C?
- A sinusoidal current rms Value of 15 A. What is the maximum or peak value?
- How does doubling the frequency affect the reactance a) an inductor b) an capacitor
- Which quantity, voltage or current leads in a capacitor and by how much angle?
- Why is power dissipated zero in pure inductive and pure capacitive circuit?
- Write down two advantages of the phase A.C supply.

## Q.3 Write short answers of the following questions.

(6x2=12)

- A sinusoidal current rms (effective) Value of 10 A. What is the maximum peak value?
- Define root mean square value of A.C voltage. (iii) Define reactance of a capacitor. Also write down its formula.
- At what frequency will an inductor of inductance 1.0 H. Have a reactants of  $500 \Omega$ .
- Define impedance and write the impedance expression for R-L series circuit.
- In R-C series circuit will the current lag or lead the voltage. Illustrate your answer with diagram.

## NOTE: Attempt a long question.

(5+3=8)

- Define modulation, electromagnetic waves and in a R-L series circuit. Will the current lag or lead the voltage? Illustrate your answer by a vector diagram.
- A circuit consist of a capacitor of  $2 \mu F$  and resistance of  $1000 \Omega$  connected in series. An alternating voltage of 12 V and frequency 50 Hz is applied. Find (i) current in the circuit, and (ii) the average power supplied.

# MCQs Ans Key.

Q:1 (C)

Q:2 (B)

Q:3 (C)

Q:4 (A)

Q:5 (A)

Q:6 (D)

Q:7 (A)

Q:8 (A)

Q:9 (A)

Q:10 (C)

Q:11 (B)

Q:12 (B)

Q:13 (B)



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|                |  |        |  |        |               |
|----------------|--|--------|--|--------|---------------|
| Name:          |  | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Chemistry-12                               | Date:  |  | Time:  |               |
| Questions Type | Type 8 - Short Test (No Choice) - Marks=30 |        |  |        |               |
| Test Syllabus: | Unit-5,                                    |        |  |        |               |

## Q.1 Circle the Correct Answers.

(6x1=6)

- Which one of halogens is a liquid?  
(A)  $F_2$  (B)  $Cl_2$  (C)  $Br_2$  (D)  $I_2$
- The radius of  $F^-$  ion is:-  
(A) 72 pm (B) 136 pm (C) 99 pm (D) 181 pm
- Which one is perchloric acid?  
(A)  $HClO$  (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- Melting points of halogens \_\_\_\_\_ the group.  
(A) Decrease down (B) Increase down (C) Remain same through out  
(D) First increase then decrease down
- Which halogen will react spontaneously with  $Au(s)$  to produce  $Au^{3+}$ ?  
(A)  $Br_2$  (B)  $F_2$  (C)  $I_2$  (D)  $Cl_2$
- Which one is chlorous acid?  
(A)  $HClO$  (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$

## Q.2 Write short answers of the following questions.

(8x2=16)

- HF is a weak acid. Why?
- Write four uses of Bleaching powder?
- How bleaching powder is prepared by Hasenclever's method?
- What is meant by available chlorine?
- What happens when bleaching powder react with (a) *dil.*  $H_2SO_4$  (b)  $NH_3$ .
- Give reaction of bleaching powder with  $NH_3$  and  $CO_2$ .
- Justify that  $Cl_2O_7$  is the anhydride of per-chloric acid.
- Perchloric acid is stronger than chloric acid. Justify.

## NOTE: Attempt the long question.

(4+4=8)

- Describe preparation of bleaching powder by Beckmann's process. Also give chemical equation.
- What happens when bleaching powder reacts with? i) *dil.*  $H_2SO_4$  ii) *Conc.*  $H_2SO_4$  iii)  $NH_3$  iv)  $HI$

# MCQs Ans Key.

Q:1 (C)

Q:2 (B)

Q:3 (D)

Q:4 (B)

Q:5 (B)

Q:6 (B)



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|                |  |        |  |        |               |
|----------------|--|--------|--|--------|---------------|
| Name:          |  | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Chemistry-12                               | Date:  |  | Time:  |               |
| Questions Type | Type 8 - Short Test (No Choice) - Marks=30 |        |  |        |               |
| Test Syllabus: | Unit-5,                                    |        |  |        |               |

## Q.1 Circle the Correct Answers.

(6x1=6)

- The radius of  $F^-$  ion is:-  
(A) 72 pm (B) 136 pm (C) 99 pm (D) 181 pm
- Which one is perchloric acid?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- Melting points of halogens \_\_\_\_\_ the group.  
(A) Decrease down (B) Increase down (C) Remain same through out  
(D) First increase then decrease down
- Hydrogen bond is the strongest between the molecules of:  
(A) HF (B) HCl (C) HBr (D) HI
- The anhydride of  $HClO_4$  is:  
(A)  $ClO_3$  (B)  $ClO_2$  (C)  $Cl_2O_5$  (D)  $Cl_2O_7$
- The weakest oxyacid of Cl is?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$

## Q.2 Write short answers of the following questions.

(8x2=16)

- Halogens are strong oxidizing agents justify?
- Write the reaction of  $Cl_2$  with hot NaOH?
- Why the oxyacids of chlorine are stronger than oxyacids of bromine?
- How bleaching powder is prepared by Hasenclever's method?
- Give reaction of bleaching powder with  $NH_3$  and HCl.
- Complete and balance following equations. (a)  $HClO_4 + P_2O_5 \xrightarrow{-10^\circ C}$  (b)  $HgO + Br_2 \xrightarrow{-50^\circ C}$
- Write reaction of  $Cl_2$  with cold and hot NaOH.
- Write order of acid strength of oxyacids of chlorine.

## NOTE: Attempt the long question. (4+4=8)

- Describe preparation of bleaching powder by Beckmann's process. Also give chemical equation.
- How water is disinfected by chlorine? Write down harmful effects of chlorination of water.

# MCQs Ans Key.

Q:1 (B)

Q:2 (D)

Q:3 (B)

Q:4 (A)

Q:5 (D)

Q:6 (A)



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|----------------|---------------------------------|--------|--|--------|---------------|
| Name:          |                                 | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Chemistry-12                    | Date:  |  | Time:  |               |
| Questions Type | Type 10 - Short Test - Marks=35 |        |  |        |               |
| Test Syllabus: | Unit-5,                         |        |  |        |               |

## Q.1 Circle the Correct Answers.

(9x1=9)

- The radius of  $\bar{F}$  ion is:-  
(A) 72 pm (B) 136 pm (C) 99 pm (D) 181 pm
- Which one is perchloric acid?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- Melting points of halogens \_\_\_\_\_ the group.  
(A) Decrease down (B) Increase down (C) Remain same through out  
(D) First increase then decrease down
- Which is the strongest acid?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- Which one is chlorous acid?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- The weakest oxyacid of Cl is?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- The strongest acid in halogen acid in solution is:  
(A) HF (B) HCl (C) HBr (D) HI
- Hydrogen bond is the strongest between the molecules of:  
(A) HF (B) HCl (C) HBr (D) HI
- Which halogen will react spontaneously with Au(s) to produce  $Au^{3+}$ ?  
(A)  $Br_2$  (B)  $F_2$  (C)  $I_2$  (D)  $Cl_2$

## Q.2 Write short answers to any (5) of the following questions.

(5x2=10)

- On what factors oxidizing properties of Halogens depends?
- Write formulas of two oxides of Bromine?
- How bleaching powder is prepared by Hasenclever's method?
- What are disproportionation reactions? Give one example.
- What happens when bleaching powder react with (a) *dil.*  $H_2SO_4$  (b)  $NH_3$ .
- Which halogen is used in water treatment to kill bacteria?
- Name the gas, which is used for earthquake prediction.
- Name the gas, which is used in bactericidal lamps.

## NOTE: Attempt any Two (2) questions.

(8x2=16)

- What happens when bleaching powder reacts with? i) *dil*  $H_2SO_4$  ii) *Conc*  $H_2SO_4$  iii)  $NH_3$  iv)  $HI$
- How water is disinfected by chlorine? Write down harmful effects of chlorination of water.
- Explain Beckmann's method for preparation of Bleaching Powder?
  - How bleaching powder is prepared? Give its uses?
- How bleaching powder is prepared by Hasenclever's method? Give its reaction with HCl and  $NH_3$ .
  - Write down reactions of  $CaOCl_2$  with. i)  $CO_2$  ii) HCl iii)  $NH_3$  iv)  $H_2SO_4$

# MCQs Ans Key.

Q:1 (B)

Q:2 (D)

Q:3 (B)

Q:4 (D)

Q:5 (B)

Q:6 (A)

Q:7 (B)

Q:8 (A)

Q:9 (B)



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|                |                                 |        |  |        |               |
|----------------|---------------------------------|--------|--|--------|---------------|
| Name:          |                                 | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Chemistry-12                    | Date:  |  | Time:  |               |
| Questions Type | Type 10 - Short Test - Marks=35 |        |  |        |               |
| Test Syllabus: | Unit-5,                         |        |  |        |               |

## Q.1 Circle the Correct Answers.

(9x1=9)

- The radius of  $\bar{F}$  ion is:-  
(A) 72 pm (B) 136 pm (C) 99 pm (D) 181 pm
- Which one is perchloric acid?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- Melting points of halogens \_\_\_\_\_ the group.  
(A) Decrease down (B) Increase down (C) Remain same through out  
(D) First increase then decrease down
- Hydrogen bond is the strongest between the molecules of:  
(A) HF (B) HCl (C) HBr (D) HI
- Which halogen will react spontaneously with Au(s) to produce  $Au^{3+}$ ?  
(A)  $Br_2$  (B)  $F_2$  (C)  $I_2$  (D)  $Cl_2$
- The anhydride of  $HClO_4$  is:  
(A)  $ClO_3$  (B)  $ClO_2$  (C)  $Cl_2O_5$  (D)  $Cl_2O_7$
- Which is the strongest acid?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- The weakest oxyacid of Cl is?  
(A) HClO (B)  $HClO_2$  (C)  $HClO_3$  (D)  $HClO_4$
- The strongest acid in halogen acid in solution is:  
(A) HF (B) HCl (C) HBr (D) HI

## Q.2 Write short answers to any (5) of the following questions.

(5x2=10)

- Why Iodine has metallic luster?
- Arrange these ions in order of increasing size:  $F^-$ ,  $I^-$ ,  $Cl^-$ ,  $Br^-$
- On what factors oxidizing properties of Halogens depends?
- HF is a weak acid. Why?
- What are disproportionation reactions? Give one example.
- Describe factors of acidic strength of oxyacids of halogens?
- How bleaching powder is prepared by Hasenclever's method?
- Name the gas, which is used in bactericidal lamps.

## NOTE: Attempt any Two (2) questions.

(8x2=16)

- Write down reactions of  $CaOCl_2$  with. i)  $CO_2$  ii) HCl iii)  $NH_3$  iv)  $H_2SO_4$
- How water is disinfected by chlorine? Write down harmful effects of chlorination of water.
- What happens when bleaching powder reacts with? i)  $dil H_2SO_4$  ii)  $Conc H_2SO_4$  iii)  $NH_3$  iv) HI
- Write a brief note on nomenclature of oxyacids of halogens.
- How bleaching powder is prepared? Give its uses?
- How bleaching powder is prepared by Hasenclever's method? Give its reaction with HCl and  $NH_3$ .

# MCQs Ans Key.

Q:1 (B)

Q:2 (D)

Q:3 (B)

Q:4 (A)

Q:5 (B)

Q:6 (D)

Q:7 (D)

Q:8 (A)

Q:9 (B)



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|                |  |        |  |        |               |
|----------------|--|--------|--|--------|---------------|
| Name:          |  | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Biology-12                                 | Date:  |  | Time:  |               |
| Questions Type | Type 8 - Short Test (No Choice) - Marks=30 |        |  |        |               |
| Test Syllabus: | Unit-19,                                   |        |  |        |               |

## Q.1 Circle the Correct Answers.

(6x1=6)

- 1 Primary growth in plants is caused by:  
(A) Apical meristem (B) Lateral meristem (C) Intercalary meristem (D) Rib meristem
- 2 Intercalary meristems are situated at:  
(A) Root Apex (B) Shoot Apex (C) Base of Internode (D) Top of Internode
- 3 Somites are formed and organized by:  
(A) Ectoderm (B) Mesoderm (C) Endoderm (D) Blastoderm
- 4 Grey equatorial cytoplasm gives size to:  
(A) Notochord and Neural Tube (B) Muscle cells and Guts (C) Skeleton and muscles  
(D) Neural Tube
- 5 Clear cytoplasm produces:  
(A) Muscle Cells (B) Gut (C) Larval epidermis (D) Notochord
- 6 Branch of Biology which deals with the study of abnormal development and their cause is called:  
(A) Teratology (B) Gerontology (C) Embryology (D) Microcephaly

## Q.2 Write short answers of the following questions.

(8x2=16)

- (i) Differentiate between Inhibitory and compensatory effect.
- (ii) How neural plate is formed?
- (iii) What is Discoidal cleavage?
- (iv) Name two layers of lateral plate of mesoderms.
- (v) Define the term Gastrocoel and Neurocoel.
- (vi) Differentiate between determinate Growth and indeterminate growth.
- (vii) Differentiate between area pellucida and area opaca.
- (viii) Enlist types of cytoplasm an the base of colours in fertilized egg of an Ascidians.

## NOTE: Attempt the long question.

(4+4=8)

- 3(a) Define and explain growth correlation.
- (b) Discuss different phases of plant growth.

# MCQs Ans Key.

Q:1 (A)

Q:2 (C)

Q:3 (B)

Q:4 (A)

Q:5 (C)

Q:6 (A)



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|                |  |        |  |        |               |
|----------------|--|--------|--|--------|---------------|
| Name:          |  | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Biology-12                                 | Date:  |  | Time:  |               |
| Questions Type | Type 8 - Short Test (No Choice) - Marks=30 |        |  |        |               |
| Test Syllabus: | Unit-19,                                   |        |  |        |               |

## Q.1 Circle the Correct Answers.

(6x1=6)

- 1 Primary growth in plants is caused by:  
(A) Apical meristem (B) Lateral meristem (C) Intercalary meristem (D) Rib meristem
- 2 Intercalary meristems are situated at:  
(A) Root Apex (B) Shoot Apex (C) Base of Internode (D) Top of Internode
- 3 The mesodermal cells do not invaginate but migrate medially and caudally from both sides and create a midline thickening called:  
(A) Hensen's Node (B) Primitive streak (C) Epiblast (D) Hypoblast
- 4 During gastrulation the blastoderm splits into two layers, an upper layer of cells is called:  
(A) Hypoblast (B) Area Pellucida (C) Epiblast (D) Area Opaca
- 5 Hatching period of chick is:  
(A) 15 days (B) 18 days (C) 21 days (D) 28 days
- 6 Hypoblast is mainly presumptive.  
(A) Endoderm (B) Ectoderm (C) Mesoderm (D) Blastoderm

## Q.2 Write short answers of the following questions.

(8x2=16)

- (i) What is meristem? Write function of lateral meristems.
- (ii) Define growth correlations.
- (iii) Define Apical dominance.
- (iv) What is Discoidal cleavage?
- (v) Compare Epiblast and Hypoblast in Gastrulation stage of development.
- (vi) Name two layers of lateral plate of mesoderms.
- (vii) Differentiate between Neurocoel and Neurulation.
- (viii) Write down the names of different kinds of cytoplasm with their functions.

## NOTE: Attempt the long question.

(4+4=8)

- 3(a) Define growth. What are its types? Explain phases of growth.
- (b) Describe growth correlations in plants.

# MCQs Ans Key.

Q:1 (A)

Q:2 (C)

Q:3 (B)

Q:4 (C)

Q:5 (C)

Q:6 (A)



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|----------------|---|--------|--|--------|---------------|
| Name:          |   | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Biology-12                                  | Date:  |  | Time:  |               |
| Questions Type | Type 11 - Short Test (No Choice) - Marks=45 |        |  |        |               |
| Test Syllabus: | Unit-19,                                    |        |  |        |               |

## Q.1 Circle the correct answer.

(13x1=13)

- Intercalary meristems are situated at:  
(A) Root Apex (B) Shoot Apex (C) Base of Internode (D) Top of Internode
- The removal of apex releases that Lateral buds from the apical dominance. It is called:  
(A) Inhibitory effect (B) Compensatory effect (C) Apical dominance (D) Reproduction
- The mesodermal cells do not invaginate but migrate medially and caudally from both sides and create a midline thickening called:  
(A) Hensen's Node (B) Primitive streak (C) Epiblast (D) Hypoblast
- During gastrulation the blastoderm splits into two layers, an upper layer of cells is called:  
(A) Hypoblast (B) Area Pellucida (C) Epiblast (D) Area Opaca
- Hatching period of chick is:  
(A) 15 days (B) 18 days (C) 21 days (D) 28 days
- Somites are formed and organized by:  
(A) Ectoderm (B) Mesoderm (C) Endoderm (D) Blastoderm
- Neural plate is formed from \_\_\_\_\_:  
(A) Ectoderm (B) Mesoderm (C) Endoderm (D) Notochord
- Hypoblast is mainly presumptive.  
(A) Endoderm (B) Ectoderm (C) Mesoderm (D) Blastoderm
- The grey equatorial cytoplasm in fertilized egg of ascidian produce:  
(A) Gut (B) Muscle (C) Larval epidermis (D) Notochord and neural Tube
- Grey vegetal cytoplasm gives rise to:  
(A) Notochord (B) Gut (C) Muscle (D) Epidermis
- Unspecialized cells, neoblast are always present in body of:  
(A) Salamander (B) Planaria (C) Newt (D) Lizard
- The unspecialized cells present in flatworms and planaria are:  
(A) Neoblast (B) Osteoblast (C) Osteoclast (D) Chondrocyte
- Environmental factors causing abnormal development are grouped together as:  
(A) Toxins (B) Carcinogens (C) Mutagens (D) Teratogens

## Q.2 Write short answers of the following questions.

(6x2=12)

- What is meristem? Write function of lateral meristems.
- Differentiate between vascular and cork cambium.
- Differentiate between Inhibitory and compensatory effect.
- Enlist key events in animal development.
- Define the term Gastrocoel and Neurocoel.
- What are neoblasts?

## Q.3 Write short answers of the following questions.

(6x2=12)

- Write different types of plant meristems.
- What is Discoidal cleavage?
- What is Blastoderm? Name its layers.
- Name two layers of lateral plate of mesoderms.
- Enlist types of cytoplasm in the base of colours in fertilized egg of an Ascidians.
- What are Teratogens? Give one example.

## NOTE: Attempt a long question.

(4+4=8)

- Explain abnormal development.
- Describe the role of nucleus in development.

# MCQs Ans Key.

Q:1 (C)

Q:2 (B)

Q:3 (B)

Q:4 (C)

Q:5 (C)

Q:6 (B)

Q:7 (A)

Q:8 (A)

Q:9 (D)

Q:10 (B)

Q:11 (B)

Q:12 (A)

Q:13 (D)



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|                |   |        |  |        |               |
|----------------|---|--------|--|--------|---------------|
| Name:          |   | Roll#: |  | Class: | Inter Part-II |
| Subject:       | Biology-12                                  | Date:  |  | Time:  |               |
| Questions Type | Type 11 - Short Test (No Choice) - Marks=45 |        |  |        |               |
| Test Syllabus: | Unit-19,                                    |        |  |        |               |

## Q.1 Circle the correct answer.

(13x1=13)

- In the zone of elongation; the volume of the cells increase upto:  
(A) 100 times (B) 150 times (C) 200 times (D) 250 times
- During elongation, the cell volume increase upto:  
(A) 50 fold (B) 100 fold (C) 150 fold (D) 200 fold
- Intercalary meristems are situated at:  
(A) Root Apex (B) Shoot Apex (C) Base of Internode (D) Top of Internode
- Young tissues retaining the potential to divide:  
(A) Meristem (B) Xylem (C) Phloem (D) Cork
- Cambium is formed in stage:  
(A) One (B) Two (C) Three (D) Four
- Immediately after fertilization, the egg undergoes a series of mitotic divisions called:  
(A) Morulla (B) Gastrulaion (C) Cleavage (D) Blastula
- The Shell, over chick egg is secreted as it passes through:  
(A) Ovary (B) Oviduct (C) Uterus (D) Cloaca
- During gastrulation the blastoderm splits into two layers, an upper layer of cells is called:  
(A) Hypoblast (B) Area Pellucida (C) Epiblast (D) Area Opaca
- Somites are formed and organized by:  
(A) Ectoderm (B) Mesoderm (C) Endoderm (D) Blastoderm
- Neural plate is formed from \_\_\_\_\_:  
(A) Ectoderm (B) Mesoderm (C) Endoderm (D) Notochord
- In which developmental stage, germ layers are formed?  
(A) Cleavage (B) Blastula (C) Gastrula (D) Organogenesis
- Gray equatorial cytoplasm gives rise to \_\_\_\_\_:  
(A) Epidermis (B) Muscle Cells (C) Notochord & Neural tube (D) Gut
- Grey vegetal cytoplasm gives rise to:  
(A) Notochord (B) Gut (C) Muscle (D) Epidermis

## Q.2 Write short answers of the following questions.

(6x2=12)

- Differentiate between growth and development.
- Define growth correlations.
- Describe morulla stage in the development of chick.
- What is Hensen's node?
- Enlist types of cytoplasm and the base of colours in fertilized egg of an Ascidians.
- Write down the names of different kinds of cytoplasm with their functions.

## Q.3 Write short answers of the following questions.

(6x2=12)

- Define Apical dominance.
- Define the term Gastrocoel and Neurocoel.
- Differentiate between Neural and Neurocel.
- Differentiate between determinate Growth and indeterminate growth.
- Differentiate between Neurocoel and Neurulation.
- Discuss the role of cytoplasm in development.

## NOTE: Attempt a long question.

(4+4=8)

- Define and explain growth correlation.
- Write a note on growth correlations.

# MCQs Ans Key.

Q:1 (B)

Q:2 (C)

Q:3 (C)

Q:4 (A)

Q:5 (D)

Q:6 (C)

Q:7 (C)

Q:8 (C)

Q:9 (B)

Q:10 (A)

Q:11 (C)

Q:12 (C)

Q:13 (B)