



**REVIEW TEST – 1**  
**CLASS – XI**

**Date :- 13- 06 - 2010**                      **Duration : 3 Hours**                      **Max. Marks : 240**

**INSTRUCTIONS**

Each of the three parts of the paper contains Section A and Section C. Section A of each part contains 15 questions and Section C of each part contains 5 questions. Total number of pages are **20**. Please ensure that the Questions paper you have received contains ALL THE QUESTIONS in each part and each section and PAGES.

**SECTION - A**

- Question 1 to Question 8 has four choices (A), (B), (C), (D) out of which **only one is correct** & carry **4 marks** each. **1 mark** will be deducted for each wrong answer.
- Question 9 to Question 11 has four choices (A), (B), (C), (D) Out of which **one or more than one is/are correct** and carry **5 marks** each. **2 mark** will be deducted for each wrong answer.
- Question 12 is Reasoning type question, contains Statement-1 (Assertion) & Statement-2 (Reason) Question has 4 choices (A), (B), (C), (D) out of which **only one is correct** & carry **4 marks**. **1 mark** will be deducted for wrong answer.
- Question 13 to Question 15 are based upon **paragraph**. Each question has 4 choices (A), (B), (C), (D) out of which **only one is correct** & carry **3 marks** each. **1 mark** will be deducted for each wrong answer.

**SECTION - C**

- Questions 1 to Questions 5 are **Integer answer type questions** (whose answer are upto 4 digits) & carry **4 marks** each. **NO NEGATIVE** marking for this section.

**NOTE : GENERAL INSTRUCTION FOR FILLING THE OMR ARE GIVEN BELOW.**

- Use only **HB pencil** or **blue/black pen (avoid gel pen)** for darkening the bubble.
- Indicate the correct answer for each question by filling appropriate bubble in your OMR answer sheet.
- The Answer sheet will be checked through computer hence, the answer of the question must be marked by shading the circles against the question by dark **HB pencil or blue/black pen**.
- While filling the bubbles please be careful about SECTIONS [i.e. Section-A include single correct answers, multi correct answers, reasoning type, paragraph type), Section-B (include match the column), Section-C (include integer type)].

SECTION-A	SECTION-B	SECTION-C																																																															
<p>For example if only 'A' choice is correct then, the correct method for filling the bubble is</p> <p>A B C D E ● ○ ○ ○ ○</p> <p>For example if only 'A &amp; C' choices are correct then, the correct method for filling the bubble is</p> <p>A B C D E ● ○ ● ○ ○</p> <p>the wrong method for filling the bubble are</p> <p>⊗ ⊗ ⊗ ⊗ ⊗</p> <p>The answer of the questions in wrong or any other manner will be treated as wrong.</p>	<p>For example If Correct match for (A) is P; for (B) is R, S; for (C) is Q; for (D) is P, Q, S then the correct method for filling the bubble is</p> <table border="0"> <tr> <td></td> <td>P</td> <td>Q</td> <td>R</td> <td>S</td> <td>T</td> </tr> <tr> <td>A</td> <td>●</td> <td>○</td> <td>○</td> <td>○</td> <td>○</td> </tr> <tr> <td>B</td> <td>○</td> <td>○</td> <td>●</td> <td>●</td> <td>○</td> </tr> <tr> <td>C</td> <td>○</td> <td>●</td> <td>○</td> <td>○</td> <td>○</td> </tr> <tr> <td>D</td> <td>●</td> <td>●</td> <td>○</td> <td>●</td> <td>○</td> </tr> </table>		P	Q	R	S	T	A	●	○	○	○	○	B	○	○	●	●	○	C	○	●	○	○	○	D	●	●	○	●	○	<p><b>Ensure that all columns are filled.</b> Answers, having blank column will be treated as incorrect. Insert leading zero(s) if required :</p> <table border="0"> <tr> <td>'6' should be filled as 0006</td> <td>'86' should be filled as 0086</td> <td>'1857' should be filled as 1857</td> </tr> <tr> <td>●●●●○</td> <td>●●○○○</td> <td>○●○○○</td> </tr> <tr> <td>①①①①</td> <td>①①①①</td> <td>①①①①</td> </tr> <tr> <td>②②②②</td> <td>②②②②</td> <td>②②②②</td> </tr> <tr> <td>③③③③</td> <td>③③③③</td> <td>③③③③</td> </tr> <tr> <td>④④④④</td> <td>④④④④</td> <td>④④④④</td> </tr> <tr> <td>⑤⑤⑤⑤</td> <td>⑤⑤⑤⑤</td> <td>⑤⑤⑤⑤</td> </tr> <tr> <td>⑥⑥⑥●</td> <td>⑥⑥⑥●</td> <td>⑥⑥⑥⑥</td> </tr> <tr> <td>⑦⑦⑦⑦</td> <td>⑦⑦⑦⑦</td> <td>⑦⑦⑦●</td> </tr> <tr> <td>⑧⑧⑧⑧</td> <td>⑧●⑧⑧</td> <td>⑧●⑧⑧</td> </tr> <tr> <td>⑨⑨⑨⑨</td> <td>⑨⑨⑨⑨</td> <td>⑨⑨⑨⑨</td> </tr> </table>	'6' should be filled as 0006	'86' should be filled as 0086	'1857' should be filled as 1857	●●●●○	●●○○○	○●○○○	①①①①	①①①①	①①①①	②②②②	②②②②	②②②②	③③③③	③③③③	③③③③	④④④④	④④④④	④④④④	⑤⑤⑤⑤	⑤⑤⑤⑤	⑤⑤⑤⑤	⑥⑥⑥●	⑥⑥⑥●	⑥⑥⑥⑥	⑦⑦⑦⑦	⑦⑦⑦⑦	⑦⑦⑦●	⑧⑧⑧⑧	⑧●⑧⑧	⑧●⑧⑧	⑨⑨⑨⑨	⑨⑨⑨⑨	⑨⑨⑨⑨
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## PART - I [MATHEMATICS]

## SECTION - (A)

## [STRAIGHT OBJECTIVE TYPE]

**Q.1 to Q.8** has four choices (A), (B), (C), (D) out of which **ONLY ONE** is correct

1. Number of positive integer  $x$ , for which  $f(x) = x^2 - 8x^2 + 20x - 13$ , is a prime number is  
(A) 1 (B) 3 (C) 2 (D) 4
2. Let  $\Delta XOY$  be a right triangle with  $\angle XOY = 90^\circ$ , Let M and N be the mid points of legs OX and OY respectively. If  $XN = 19$  and  $YM = 22$  then XY equals :  
(A) 26 (B)  $13\sqrt{5}$  (C) 32.5 (D) 41
3. There exist positive integer A, B and C with no common factors greater than 1, such that  $A \log_{200} 5 + B \log_{200} 2 = C$  then  $A + B + C$  equals  
(A) 5 (B) 6 (C) 7 (D) 8
4. The value of  $x$  satisfying the equations  $\log^2 x^3 - 20 \log \sqrt{x} + 1 = 0$  and  $\log(x(x-9)) + \log \frac{(x-9)}{x} = 0$  is (base of logarithm is 10)  
(A)  $10^{1/9}$  (B) 8 (C) 10 (D) 11

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5. The value of  $\log_{100} \log_{101} \log_{102} \dots \log_{997} 997^{996^{995 \dots 100}}$   
 (A) 0 (B) 1 (C) 2 (D) -1
6. The equation  $x^{\frac{3}{4}(\log_2 x)^2 + \log_2 x - \frac{5}{4}} = \sqrt{2}$  has  
 (A) at least one real solution (B) exactly three real solutions  
 (C) exactly one irrational solution (D) complex roots
7. If  $\tan \theta = -\frac{4}{3}$ , then  $\sin \theta$  is  
 (A)  $-\frac{4}{5}$  but not  $\frac{4}{5}$  (B)  $-\frac{4}{5}$  or  $\frac{4}{5}$  (C)  $\frac{4}{5}$  but not  $-\frac{4}{5}$  (D) None of these
8. The expression  $\frac{12}{3 + \sqrt{5} + 2\sqrt{2}}$  is equal to  
 (A)  $1 - \sqrt{5} + \sqrt{2} + \sqrt{10}$  (B)  $1 + \sqrt{5} + \sqrt{2} - \sqrt{10}$   
 (C)  $1 + \sqrt{5} - \sqrt{2} + \sqrt{10}$  (D)  $1 - \sqrt{5} - \sqrt{2} + \sqrt{10}$

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**[MULTIPLE CORRECT TYPE]**

**Q.9 to Q.11** has four choices (A), (B), (C), (D) out of which **ONE OR MORE THAN ONE** is/are correct

9. If  $2^{\log(-x)} + \sqrt{2}^{\log x^2} = 8$

then which of the following statement (s) is/are true for  $x + \frac{1}{x} = \log z$

- (A) Minimum value of  $x + \frac{1}{x}$  is 2  
 (B) maximum value of  $x + \frac{1}{x}$  is -2  
 (C) characteristic of number z is -101  
 (D) mantissa of number z is 0.001

10.  $x = (2)^{\log_2((8^{(\log_{11} 11^{33})}))}$ ,  $y = \sqrt{2^{\sqrt{\log_{16} 2}}}$ ,  $z = \frac{N}{B}$

where  $\log_B N = \log_5 4 \log_6 5 \log_7 6 \dots \dots \dots \log_{37} 36$  then  $(xy)^z$  is/are

- (A) Rational (B) Irrational (C) Prime (D) Twin prime with 5

11. If  $A + B = \frac{\pi}{3}$  and  $\cos A + \cos B = 1$ , then which of following is/are true ?

- (A)  $\cos(A - B) = \frac{1}{3}$  (B)  $|\cos A - \cos B| = \sqrt{\frac{2}{3}}$  (C)  $\cos(A - B) = -\frac{1}{3}$  (D)  $|\cos A - \cos B| = \frac{1}{2\sqrt{3}}$

**SPACE FOR ROUGH WORK**



## [REASONING TYPE]

**Q.12** is Reasoning type question, contains Statement-1 (Assertion) and Statement-2 (Reason) Each questions has **four** choices (A), (B), (C), (D) out of which **only one** is correct

12. **Statement–1** : The equation  $(\log_{10}x)^2 - \log_{10}x^2 + 1 = 0$  has only one solution.

**Because**

**Statement–2** :  $\log_{10}x^2 = 2 \log_{10}x$  if  $x > 0$ .

- (A) Statement (1) is true, statement (2) is true and statement (2) is correct explanation for Statement (1)  
(B) Statement (1) is true, statement (2) is true and statement (2) is NOT the correct explanation for Statement (1)  
(C) Statement (1) is true but statement (2) is false  
(D) Statement (1) is false but statement (2) is true

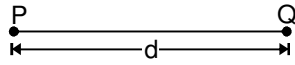
SPACE FOR ROUGH WORK



**[COMPREHENSION TYPE]**

**Q.13 to Q.15** are based upon a paragraph. Each questions has four choices (A), (B), (C), (D) out of which **only one** is correct.

... ..  $(C^{nA})$ , where A is the value of 'x' satisfying the equation  $\frac{1}{2x} \log 3 + \log 3 = \log (108 - 3^{1/x})$ , B is/are number of solution (s) of the equation  $\left(\frac{1}{5}\right)^{\log^2 x - \log x} = \frac{1}{125} \cdot 5^{\log x - 1}$  and C (C > 1) is the value of x, satisfying the equation  $10^{(\log x)^2 + 6 \log x - 16} = 1$



- 13. A is equal to  
 (A)  $\frac{1}{2}$                       (B) 2                      (C)  $\frac{1}{4}$                       (D) 4
- 14. B is equal to  
 (A) 2                      (B) 4                      (C) 8                      (D) 16
- 15. If Ram travels from point P to Q and returns back to P, then the total distance travelled by him is :  
 (A) 2                      (B) 4                      (C) 8                      (D) 16

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## SECTION - (C)

### [INTEGER ANSWER TYPE]

**Q. 1 to 5 are Integer Answer type Questions. (The answer of each of the questions are upto 4 digits)**

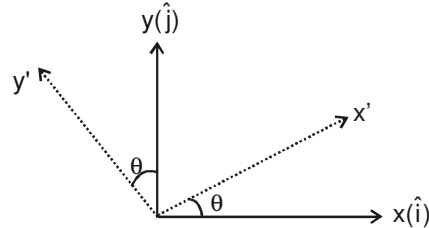
1. If  $a^2 + b^2 = c^2$  then  $\frac{\log_{c+b} a + \log_{c-b} a}{\log_{c+b} a \cdot \log_{c-b} a} = ?$
2. Find the least value of  $\sqrt{3} [\log_2 x - \log_x (0.125)]$  where  $x > 1$  ?
3. The value of  $x$  satisfying the equation  $\log_7 \log_5 (\sqrt{x+5} + \sqrt{x}) = 0$  is
4. If the expression  $\cos \left( x - \frac{3\pi}{2} \right) + \sin \left( \frac{3\pi}{2} + x \right) + \sin (32\pi + x) - 18 \cos (19\pi - x) + \cos(56\pi + x) - 9 \sin(x + 17\pi)$  may be expressed in the form of  $a \sin x + b \cos x$ , then find the value of  $\frac{a+b}{9}$  ?
5. Find the value of  $2 \cos 2 - 4 \sin \left( 1 + \frac{\pi}{6} \right) \cos \left( 1 + \frac{\pi}{3} \right)$

SPACE FOR ROUGH WORK





4. If there are two forces of magnitude 5 N and  $1.8^\circ$  angle between them. Find out the approximate value of their resultant. [Use  $\pi^2 \approx 10$ ]  
 (A)  $10\sqrt{2}$  (B) 5 (C) 10 (D) none of these
5. If  $\vec{A} = \hat{i}A \cos \theta + \hat{j}A \sin \theta$ , then another vector  $\vec{B}$  which is perpendicular to  $\vec{A}$  can be expressed as :  
 (A)  $\hat{i}B \cos \theta - \hat{j}B \sin \theta$  (B)  $\hat{i}B \cos \theta + \hat{j}B \cos \theta$  (C)  $\hat{i}B \sin \theta - \hat{j}B \cos \theta$  (D)  $\hat{i}B \cos \theta + \hat{j}B \sin \theta$
6. If  $\vec{b} = 3\hat{i} + 4\hat{j}$  and  $\vec{a} = \hat{i} - \hat{j}$ , the vector having the same magnitude as that of  $\vec{b}$  and parallel to  $\vec{a}$  is :  
 (A)  $\frac{5}{\sqrt{2}}(\hat{i} - \hat{j})$  (B)  $\frac{5}{\sqrt{2}}(\hat{i} + \hat{j})$  (C)  $5(\hat{i} - \hat{j})$  (D)  $5(\hat{i} + \hat{j})$
7. Two forces (P+Q) and (P-Q) makes an angle  $2\alpha$  with one another and their resultant makes an angle  $\theta$  with the bisector of the angle between them. Choose the correct statement  
 (A)  $P \tan \theta = Q \tan \alpha$ . (B)  $Q \tan \theta = P \tan \alpha$ .  
 (C)  $Q \operatorname{cosec} \theta = P \tan \alpha$ . (D)  $Q \cot \theta = P \operatorname{cosec} \alpha$ .
8. A co-ordinate system consisting of x-y axis, is rotated by an angle  $\theta$  in anticlockwise direction in the same plane. The unit vector along new set of axes,  $\hat{x}'$  and  $\hat{y}'$  are respectively.



- (A)  $\cos \theta \hat{i}$  &  $\sin \theta \hat{j}$   
 (B)  $\cos \theta \hat{i} + \sin \theta \hat{j}$  &  $-\sin \theta \hat{i} + \cos \theta \hat{j}$   
 (C)  $\cos \theta \hat{i} + \sin \theta \hat{j}$  &  $\sin \theta \hat{i} + \cos \theta \hat{j}$   
 (D)  $\sin \theta \hat{i} + \cos \theta \hat{j}$  &  $\cos \theta \hat{i} + \sin \theta \hat{j}$

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SPACE FOR ROUGH WORK



## [MULTIPLE CORRECT TYPE]

**Q.9 to Q.11** has four choices (A), (B), (C), (D) out of which **ONE OR MORE THAN ONE** is/are correct

9. The velocity, acceleration and force in two system of units are related as under :

$$\text{i. } v' = \frac{\alpha^2}{\beta} v \quad \text{ii. } a' = (\alpha\beta)a \quad \text{iii. } F' = \left(\frac{1}{\alpha\beta}\right)F$$

All the primed symbols belong to one system and unprinted belong to the other system.  $\alpha$  and  $\beta$  are dimensionless constants. Which of the following is/are correct ?

(A) Length standards of the two systems are related by :  $L' = \left(\frac{\alpha^3}{\beta^3}\right)L$

(B) Mass standards of the two systems are related by :  $m' = \left(\frac{1}{\alpha^2\beta^2}\right)m$

(C) Time standards of the two systems are related by :  $T = \left(\frac{\alpha}{\beta^2}\right)T$

(D) Momentum standards of the two systems are related by :  $P' = \left(\frac{1}{\beta^3}\right)P$

SPACE FOR ROUGH WORK



10. The angle between two vector  $\vec{a}$  &  $\vec{b}$  is  $\theta$  and the magnitude of  $\vec{b}$  is half of magnitude of  $\vec{a}$ . If  $\vec{c} = \vec{a} - \vec{b}$  &  $|\vec{a}| = a$  then choose the correct statements
- (A) if  $c = \frac{a\sqrt{5}}{2}$  then  $\theta$  will be  $90^\circ$                       (B) if  $c = \frac{a\sqrt{3}}{2}$  then  $\theta$  will be  $60^\circ$
- (C) if  $c = \frac{a}{\sqrt{2}}$  then  $\theta$  will be  $45^\circ$                       (D) if  $c = \frac{3a}{2}$  then  $\theta$  will be  $180^\circ$
11. The x-component of the resultant of several vectors :
- (A) is equal to the sum of the x-components of the vectors  
(B) may be smaller than the sum of the magnitudes of the vectors  
(C) may be greater than the sum of the magnitudes of the vectors  
(D) may be equal to the sum of the magnitudes of the vectors

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SPACE FOR ROUGH WORK



## [REASONING TYPE]

**Q.12** is Reasoning type question, contains Statement-1 (Assertion) and Statement-2 (Reason) Each questions has **four** choices (A), (B), (C), (D) out of which **only one** is correct

**Direction** : Each of the following questions has main statement followed by four statement (a), (b), (c) & (d) choose the pair from the given options where the main statement and the four statement in the option logically conclude the second.

12. All rivers are sea

(a) Some streams are river

(b) Some streams are boat

(c) Some boats are river

(d) Some streams are sea

(A) ad

(B) da

(C) ab

(D) bc

SPACE FOR ROUGH WORK



## [COMPREHENSION TYPE]

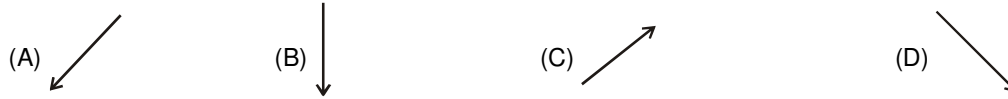
Q.13 to Q.15 are based upon a paragraph. Each questions has four choices (A), (B), (C), (D) out of which **only one** is correct.

## Paragraph Ques. No. 13 to 15

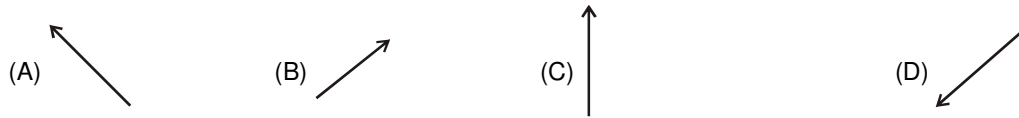
Two vector  $\vec{A}$  and  $\vec{B}$  of unknown magnitudes along  $\vec{E}$  &  $\vec{D}$  (as shown below) respectively :



Then  $(\vec{A} - \vec{B})$  could not be :



14.  $\vec{A} + \vec{B}$  could be :



15. If  $\vec{C}$  is another vector represented as then  $(\vec{A} - \vec{B} + \vec{C})$  could not be :



SPACE FOR ROUGH WORK

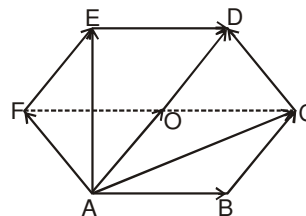


## SECTION - (C)

### [INTEGER ANSWER TYPE]

Q.1 to 5 are Integer Answer type Questions. (The answer of each of the questions are upto 4 digits)

1. The shadow of a tower standing on a level plane is found to be  $100\sqrt{3}$  m longer when sun's altitude is  $30^\circ$  than when it is  $60^\circ$ . Find the height.
2. If the unit of velocity be  $20 \text{ ms}^{-1}$ , the unit of acceleration  $5 \text{ m/s}^2$  and the unit of force 10 m. If unit of mass is x, length is y and time is z then find the value of  $\frac{y}{xz}$
3. On a horizontal flat ground, a person is standing at a point A. At this point, he installs a 5 m long pole vertically. Now, he moves 5 m towards east and then 2 m towards north and reaches at a point B. There he installs another 3 m long vertical pole. A bird flies from the top of first pole to the top of second pole. Find the magnitude of the displacement of the bird. [Take closest value of nearest integer]
4. As shown in figure, ABCDEF is a regular hexagon. What is the value of  $\vec{AB} + \vec{AC} + \vec{AD} + \vec{AE} + \vec{AF}$  in terms of  $K\vec{AO}$   
Find value of K.
5. The components of a vector along x - and y - directions are  $(n + 1)$  and 1, respectively. If the coordinate system is rotated by an angle  $\theta = 60^\circ$ , then the components change to n and 3. Then value of  $2n$  is



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**PART - III [CHEMISTRY]****USEFUL DATA**[Universal Gas Constant,  $R = 0.0821 \text{ atm} \cdot \text{L/molK}$ ]

[Atomic No. of Cs = 55, Ce = 58, La = 57, Atomic Mass, of Cu = 63.5, S = 32, O = 16, H = 1, N = 14, He = 4]

**SECTION - (A)****[STRAIGHT OBJECTIVE TYPE]**

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**Q.1 to Q.8** has four choices (A), (B), (C), (D) out of which **ONLY ONE** is correct

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- The "Atomic Volume" of an element is defined as:  
(A) Volume occupied by an atom.  
(B) Volume occupied by one gram of an atom.  
(C) volume occupied by one gram atom of an element  
(D) None of these
- Which of the following is **NOT** correctly matched  
(A) d-block element : electronic configuration is  $ns^0(n-1)d^{1-10}$   
(B) p-block element : electronic configuration is  $ns^{1-2}np^{1-6}$   
(C) s-block element : electronic configuration is  $ns^{1-2}$   
(D) Ce : first member of f-block.

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**SPACE FOR ROUGH WORK**

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3. The mass of 1 gm of oxygen molecule is :  
(A) 1 gm (B) 32 gm (C) 32 amu (D) None of these
4. Maximum no. of electrons that a d-orbital can accommodate is:  
(A) 10 (B) 2 (C) 6 (D) None of these
5. The atomic Mass of C-12 isotope is :  
(A) 12 gm (B) 12 amu (C) 12 (D) None of these
6. Which of the following is **NOT** in increasing order of ionic radii?  
(A)  $\text{Al}^{3+} < \text{Mg}^{2+} < \text{Na}^+$  (B)  $\text{O}^{2-} < \text{F}^- < \text{Na}^+$   
(C)  $\text{K}^+ < \text{Cl}^- < \text{S}^{2-}$  (D) (A) and (C) both
7. Volume of 2 moles of  $\text{SO}_2(\text{g})$  at 1 atm and 273 K is :  
(A) 22.4 L (B) 22.7 L (C) 44.8 L (D) 45.4 L
8. The no. of gram atoms of oxygen in 499 gm of  $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$  is :  
(A) 8 (B) 16 (C) 18 (D) None of these

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**[MULTIPLE CORRECT TYPE]**

**Q.9 to Q.11** has four choices (A), (B), (C), (D) out of which **ONE OR MORE THAN ONE** is/are correct

9. Which of the following are in increasing order radii:  
(A)  $I^+$ , I,  $I^-$                       (B) N, C, P, Si                      (C)  $Mg^{2+}$ , Ne,  $F^-$ ,  $O^{2-}$                       (D)  $Fe^{3+}$ ,  $Fe^{2+}$ , Fe
10. 1.7 gm of  $NH_3$  has  
(A)  $0.4 N_A$  atoms                      (B) 2.27 L at STP.                      (C)  $N_A$  no. of electron                      (D)  $0.2 N_A$  no. of atoms
11. Which of the following occupy 5.675 L at STP?  
(A) 1 gm of He gas                      (B) 0.5 gm of hydrogen atom  
(C) 11 gm of  $CO_2$                       (D) 2 gm of Hydrogen gas .

**[REASONING TYPE]**

**Q.12** is Reasoning type question, contains Statement-1 (Assertion) and Statement-2 (Reason) Each questions has **four** choices (A), (B), (C), (D) out of which **only one** is correct

12. **Statement-1** : "La" should be f-block element according to **Aufbau principle**.  
**Statement-2** :  $57^{th}$  electron exceptionally enter into the 5d orbital.  
(A) Statement (1) is True, statement (2) is True and statement (2) is correct explanation for Statement (1)  
(B) Statement (1) is True, statement (2) is True and statement (2) is NOT the correct explanation for Statement (1)  
(C) Statement (1) is true, statement (2) is false  
(D) Statement (1) is false, statement (2) is true

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## [COMPREHENSION TYPE]

**Q.13 to Q.15** are based upon a paragraph. Each questions has four choices (A), (B), (C), (D) out of which **only one** is correct.

Katrina-kaif loves her fans and autographs using her favourite pencil which is made up of C - 12. Salman khan, a very good and close friend of Katrina-kaif also uses his favourite pencil to autograph his fans, which is made up of C-14. For every autograph Katrina uses 12 mg of her pencil and Salman uses 14 mg of his pencil.

13. Calculate the no. of autographs for which Katrina will use 60 gm of her pencil.  
(A) 500                      (B) 5000                      (C) 1000                      (D) None of these
14. How much amount of pencil carbon will Salman use for the same number of autographs as obtained in above part?  
(A) 60 gm                      (B) 5 moles                      (C) 75 gm                      (D) None of these
15. What is the average molecular mass of carbon spent by Katrina & Salman combined if for every 7 autographs of Katrina, Salman autographs only 3 fans.  
(A) 12.6 gm/mol                      (B) 12.2 gm/mol                      (C) 13 gm/mol                      (D) None of these

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**SECTION - (C)****[INTEGER ANSWER TYPE]**

**Q.1 to 5 are Integer Answer type Questions. (The answer of each of the questions are upto 4 digits)**

1. How many elements can be present in 9<sup>th</sup> period according to present rules followed?
2. How many orbitals are there in a shell with  $n = 4$ ?
3. Calculate  $Z_{\text{eff}}$  for outermost electron of Cs(55). (Mark in the OMR after multiplying the attained answer by 1000. Suppose if the answer is 4.35. Mark it as 4350).
4. What are the total no. of moles of neutrons in 45.4 L of superheated steam (Behaves ideally) at STP?
5. Chambal Fertilizers and Chemical Limited Kota (CFCL) manufactures Urea ( $\text{NH}_2\text{CONH}_2$ ). Every day CFCL has a target of manufacturing 12 tonnes of Urea which is sold at a rate of Rs. 12/kg. For every 10,000 moles Urea sold CFCL earns a profit of Rs. 20,000 calculate the profit earned by CFCL everyday.  
[Mark your answer in the OMR sheet after dividing the obtained result by 100. Suppose if your result is 3,50,000 then mark it as 3500]

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