LEAP SAMPLE TEST PAPER (X STD)

Time : 1 hrs. **Maximum Marks : 120**

Name : _____Roll No. : _____

NOTE:
1. There are 4 Sections **(1) Physics - 7 Q. (2) Chemistry - 7 Q. (3) Mathematics – 8 Q. (4) Biology – 8 Q**
2. Each section consists of MCQ with 4 options out of which only one option is correct.
3. There is negative marking scheme for **(4R-1W)** means that for correct answer 4 marks will be awarded & for wrong answer 1 mark will be deducted.
4. No mark will be awarded or deducted for unanswered question.

PHYSICS

NOTE: There are 7 questions in this part.

7 × 4 = 28 Marks (4R – 1W)

CHOOSE THE CORRECT OPTION:

Q.1) Two heater wires of equal length are connected first in series and then in parallel. The ratio of heat generated from parallel to series connection will be

(A) 4 : 1 (B) 1 : 4 (C) 1 : 2 (D) 2 : 1

Q.2) A wooden block of mass "C" at rest is stuck by a fast moving bullet at velocity "B" and mass "A", neglecting the frictional force and loss in mass calculate the velocity of the system.

(A) $\frac{AB}{A+C}$ (B) $\frac{A+C}{B+C}$ (C) $\frac{AC}{B+C}$ (D) $\frac{A+B}{AC}$

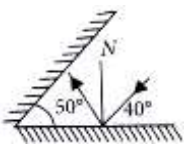
Q.3) Number of kilowatt-hours

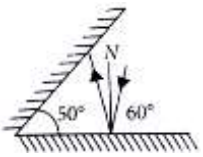
$$\frac{volt * Ampere * \_\_\_\_\_}{1000}$$

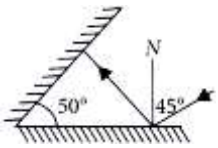
(A) Time in seconds (B) Time in minutes

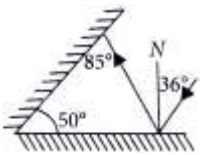
(C) Time in hours (D) Time in days

Q.4) Which of the following correctly depicts reflection. When two mirrors are inclined at an angle of 50°?

(A) 

(B) 

(C) 

(D) 

Q.5) Water heater 1 can warm the given amount of water till boiling point in 10 min, heater 2 can do the same to same amount of water in 15 min both working at same voltage, calculate the time taken by the combination of heater 1 and heater 2 connected in parallel to each other to boil same amount of water at same voltage as before.

(A) 10 min (B) 7 min (C) 6 min (D) 15 min

Q.6) Ram weighed a hollow spherical ball and found it to be 25 gm in air, when he tried to weigh the same inside water it showed and 15 gm in water. If its material density is 5gm/cc then find the volume of hollow space inside it.

(A) 2 cc (B) 5 cc (C) 15 cc (D) 10 cc

Q.7) Which one of the following bodies is having highest potential energy at a fixed point?

(A) A body of mass 2 kg is placed at a height of 6 m

(B) A body of mass 3 kg is placed at a height of 5 m

(C) A body of mass 4 kg is placed at a height of 4 m

(D) A body of mass 5 kg is placed at a height of 3 m

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CHEMISTRY

NOTE: There are 7 questions in this part.

7 × 4 = 28 Marks (4R – 1W)

CHOOSE THE CORRECT OPTION:

Q.8) Solid calcium oxide reacts vigorously with water to form calcium hydroxide accompanied by liberation of heat. This process is called slaking of lime. Calcium hydroxide dissolves in water to form its solution called lime water. Which among the following is (are) true about slaking of lime and the solution formed?

(i) It is an endothermic reaction.

(ii) It is an exothermic reaction.

(iii) The pH of the resulting solution will be more than seven.

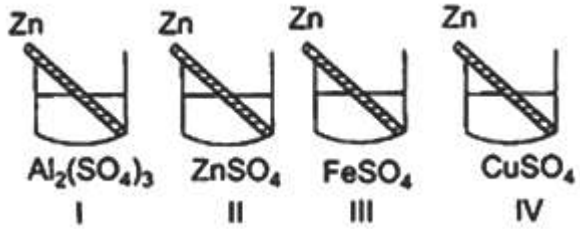
(iv) The pH of the resulting solution will be less than seven.

(A) (i) and (ii) (B) (ii) and (iii) (C) (i) and (iv) (D) (iii) and (iv)

Q.9) Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water respectively is:

(A) 1:1 (B) 2:1 (C) 4:1 (D) 1:2

Q.10) Four students P, Q, R and S noted the initial colour of the solutions kept in beakers I, II, III and IV. After inserting zinc rods in each solution and leaving them undisturbed for two hours, the colour of each solution was again noted in the form of table given below:



Student	Colour of the solution	I	II	III	IV
P	Initial	Colour- less	Colour- less	Light green	Blue
	Final	Colour- less	Colour- less	Colour- less	Colour- less
Q	Initial	Colour- less	Light yellow	Light green	Blue
	Final	Colour- less	Colour- less	Light green	Colour- less
R	Initial	Colour- less	Colour- less	Light green	Blue
	Final	Light blue	Colour- less	Colour- less	Light blue
S	Initial	Light green	Colour- less	Light green	Blue
	Final	Colour- less	Colour- less	Dark green	Colour- less

Which student noted the colour change in all the four beakers correctly?

(A) P (B) Q (C) R (D) S

Q.11) $Fe_2O_3(s) + 2\ Al\ (s) \rightarrow 2Fe\ (s) + Al_2O_3\ (s)$

The reaction is interpreted as

(A) Fe_2O_3 is getting oxidised and Al is getting reduced

(B) Fe_2O_3 is getting reduced and Al is getting oxidized

(C) Only Fe_2O_3 is oxidized

(D) 6 Only Al is oxidised

Q.12) A student used a carbon pencil to write his homework. The mass of this was found to be 5 mg. With the help of this calculate the number of moles of carbon in his homework writing.

(A) 4.16×10^{-4} (B) 6.022×10^{23} (C) 22.4×10^{20} (D) 22.4×10^{23}

Q.13) Which of the following has maximum number of molecules?

(A) $7gN_2$ (B) $2gH_2$ (C) $8gO_2$ (D) $20gNO_2$

Q.14) Position of five elements P, Q, R, S and T is shown on the simplified form of the periodic table.

1											18
	2		13	14	15	16	17	7
							R	
P								
Q		– 3 to 12 –					S	

The element which has maximum tendency to lose electron, the element which has maximum tendency to gain electrons and the element which has no tendency to gain or lose electrons are respectively?

(A) P, R and S (B) S, R and T (C) Q, S and P (D) Q, R and T.

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MATHEMATICS

NOTE: There are 8 questions in this part.

8 × 4 = 32 Marks (4R – 1W)

CHOOSE THE CORRECT OPTION:

Q.15) Let, $\alpha \neq \beta, \alpha^2 + 3 = 5\alpha$ and $\beta^2 = 5\beta - 3$. The quadratic equation whose roots one $\frac{\alpha}{\beta}$ and $\frac{\beta}{\alpha}$ will be

(A) $3x^2 - 19x + 3 = 0$ (B) $3x^2 + 19x + 3 = 0$

(C) $3x^2 - 19x - 3 = 0$ (D) $3x^2 - 3x + 1 = 0$

Q.16) Let x be the greatest number by which if we divide 366, 513 and 324, then in each case the remainder is the same. The sum of digits of x is

(A) 3 (B) 4 (C) 5 (D) 7

Q.17) If we divide a two digit number by the sum of its digits we get 4 as quotient and 3 as remainder. Now if we divide that two digit number by the product of its digits, we get 3 as quotient and 5 as remainder the two digit number is

(A) even (B) odd prime (C) odd composite (D) none of these

Q.18) **Statement I:** If $\sqrt{5+\sqrt{24}} = \sqrt{x} + \sqrt{y}$ then $x + y = 5$ and $xy = 24$.

Statement II: The square root of $(5 - \sqrt{24})$ is $(\sqrt{3} - \sqrt{2})$

(A) Both statement I and II are wrong.

(B) Statement I is wrong, but statement II is right

(C) Both statement I and II are right

(D) Statement I is right, but statement II is wrong.

Q.19) The ratio of the root of the equation $ax^2 + bx + c = 0$ is same as the ratio of the roots of the equation $px^2 + qx + r = 0$. If D_1 and D_2 are the discriminate of $ax^2 + bx + c = 0$ and $px^2 + qx + c = 0$ represent it then $D_1 : D_2 =$

(A) $\frac{a^2}{p^2}$ (B) $\frac{b^2}{q^2}$ (C) $\frac{c^2}{r^2}$ (D) None of these

Q.20) A boat is being rowed away from a cliff 150m high. At the top of the cliff the angle of depression of the boat changes from 60° to 45° in 2 minutes. The speed of the boat is

(A) 2 km/h (B) 1.9 km/h (C) 2.4 km/h (D) 3 km/h

Q.21) Two vertices of a triangle are (–1, 4) and (5, 2) if the centroid is (0, –3), find the third vertex.

(A) (–1, –15) (B) (4, 15) (C) (–1, –4) (D) (– 4, –15)

Q.22) In a triangle PQR, $\angle R = \pi/2$. If $\tan\left(\frac{P}{2}\right)$ and $\tan\left(\frac{Q}{2}\right)$ are the roots of equation $ax^2 + bx + c = 0$ $(a \neq 0)$, then

(A) $a + b = c$ (B) $b + c = a$ (C) $a + c = b$ (D) $b = c$

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BIOLOGY

NOTE: There are 8 questions in this part.

8 × 4 = 32 Marks (4R – 1W)

CHOOSE THE CORRECT OPTION:

Q.23) Which of the following bacteria used for production of fuels?

(A) Bacillus amyloliquefaciens

(B) Escherichia coli

(C) Zymomonas mobilis

(D) Both (B) and (C)

Q.24) Phycology is the study of

(A) Algae (B) Fern (C) Fungi (D) bryophytes

Q.25) Match the following

A.	Cyclostomes	1.	Hemichordata
B.	Aves	2.	Urochordata
C.	Tunicates	3.	Agnatha
D.	Balanoglossus	4.	Pisces
E.	Osteichythyes	5.	Tetrapod

(A) A-1 B-2 C-3 D-4 E-5 (B) A-2 B-3 C-4 D-1 E-5

(C) A-3 B-5 C-2 D-1 E-4 (D) A-3 B-1 C-5 D-2 E-4

Q.26) Cartilage is formed by

(A) Chondrocytes (B) Osteoblasts (C) Peritoneum (D) Periosteum

Q.27) The basic postulates of the cell theory are

(i) All living organisms consists of one or more cells.

(ii) The cell is the basic unit of structure and function of all living organisms.

(iii) All cells arise from pre-existing cells.

These were proposed by

(A) Schleiden, Schwann and Virchow

(B) Antonie von Leeuwenhoek

(C) Darwin and Mendel

(D) Schleiden, Schwann and Hooke

Q.28) The protein present in wheat grain is

(A) Glutenin (B) Glycogen (C) Zymase (D) Albumin

Q.29) The factor which is not limiting in normal conditions for photosynthesis is

(A) Water (B) Chlorophyll (C) Light (D) Carbon dioxide

Q.30) In human pH of saliva is

(A) 6.5 (B) 8 (C) 7 (D) 9.5

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LEAP SAMPLE ANSWER KEY (X STD)

1	A	16	A
2	A	17	B
3	C	18	B
4	A	19	B
5	C	20	B
6	B	21	D
7	C	22	A
8	B	23	D
9	B	24	A
10	A	25	C
11	B	26	A
12	A	27	A
13	B	28	A
14	D	29	B
15	A	30	A

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