

FOUNDATION COURSE

CLASS X

Max. Marks. : 100

Time : 2 hrs.

PAPER : 16

P_G C_S M_A B_D

TOPICS COVERED:

- PHYSICS** : Full Syllabus
CHEMISTRY : Classification of Elements
MATHS : Full Syllabus
BIOLOGY : Origin and Evolution, Our Environment

GENERAL INSTRUCTIONS :

1. Paper consist of **4 Section** each for **Physics, Chemistry, Maths** and **Biology**. Answers for each question should be given in the space provided in the question paper itself.
2. Each section contains 13 questions, all questions are compulsory.
3. Question 1 - 5 are **objective type questions** of 1 Mark each.
4. Question 6 - 7 consist of 1 Marks each.
5. Question 8 - 9 consist of 2 Marks each.
6. Question 10 - 12 consist of 3 Marks.
7. Question 13 consist of 5 Marks.

	Physics	Chemistry	Maths	Biology
Marks				
Total				

Name of the Student : _____

Centre : _____

Invigilator's Signature: _____

9. Why colour of sun is red in the morning ?

[2]

10. A small object is placed on the axis of a convex lens of focal length 0.2 m at a distance of 0.5 m from it. Find the position and linear magnification of image ?

[3]

11. What is magnification ? Find magnification if object is placed at a distance of $3F/2$ from concave mirror. (Where F is the focal length of concave mirrors)

[3]

12. Draw the diagram of human eye.

[3]

13. (a) Write uses of concave mirror

[5]

(b) Draw the ray diagram also write about the nature of image formed when

(i) object is placed between focus and pole

(ii) object is placed between centre and focus

(iii) object is placed between centre and curvature

(iv) object is placed between beyond center of curvature

9. What were the limitations of Dobereiner's classification of elements ? [2]
10. The atomic numbers of three elements P, Q & R are 10, 12 & 18 respectively.
(a) Which of these elements belong to the same group ?
(b) Which of the two elements belong to the same period ? [3]
11. State two defects in Mendeleev's periodic table. [3]
12. Why were the noble gases discovered very late ? Why are they placed in a separate group ? [3]

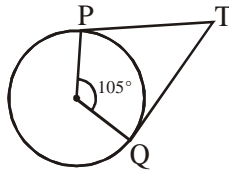
13. The position of three elements A, B and C in the periodic table are shown below :

Group 16	Group 17
-	-
B	A
-	-
-	C

- (a) State whether A is a metal or a non-metal.
- (b) Will C be larger or smaller in size than A ?
- (c) Which type of ion, cation or anion, will be formed by element B ?
- (d) State the normal valencies of the elements B and C.

[1,1,1,2]

1. Which term of the AP : 21, 28, 15 is -81 [1]
 (a) 25th (b) 30th (c) 35th (d) None of these
2. The sum of the first 22 terms of the AP : 8, 3, -2 is [1]
 (a) -679 (b) -879 (c) -979 (d) -1079
3. The distance of a point $P(4, -3)$ from the origin $O(0, 0)$ is [1]
 (a) 6 (b) $\sqrt{5}$ (c) 5 (d) 25
4. The co-ordinate of mid point of the points $(-a, b)$ and $(a, -b)$ is [1]
 (a) (a, b) (b) $(0, a)$ (c) $\left(\frac{a}{2}, \frac{b}{2}\right)$ (d) $(0, 0)$
5. In figure if TP and TQ are the two tangents to a circle with centre O so that $\angle POQ = 105^\circ$, then $\angle PTQ$ is equal to [1]



- (a) 60° (b) 70° (c) 75° (d) 80°
6. How many two-digit numbers are divisible by 3. [1]
 7. Find the area of a triangle whose vertices are $(1, -1)$, $(4, -6)$ and $(-3, -5)$ [1]
 8. Find the angle of elevation of a 100m tall building at a point which is 100 m far from the building on a ground. [2]

9. Two concentric circles of radii 5cm and 3cm. Find the length of the chord of the larger circle which touches the smaller circle. [2]
10. Two tangents TP and TQ are drawn to a circle with centre O from an external point T. prove that $\angle PTQ = 2\angle OPQ$ [3]
11. Find the sum of first 24 terms of the list of numbers whose nth term is given by $a_n = 3 + 2n$. [3]
12. If Q(0, 1) is equidistant from (5, -3) and R(x, 6), find the values of x. Also find the distances QR and PR. [3]

13. From a point P on the ground the angle of elevation of the top of a 10m tall building is 30° . A flag is hoisted at the top of the building and the angle of elevation of the top of the flag staff from P is 45° find the length of the flagstaff and the distance of the building from the point P. [5]

BIOLOGY

1. Flow of energy in an ecosystem is always (1)
(a) unidirectional (b) bidirectional (c) multi directional (d) no specific direction
2. If the fossil of an organism is found in the deeper layers of earth, then we can predict that (1)
(a) the extinction of organism has occurred recently
(b) the extinction of organism has occurred thousands of years ago
(c) the fossil position in the layers of earth is not related to its time of extinction
(d) time of extinction cannot be determined
3. According to the evolutionary theory, formation of a new species is generally due to (1)
(a) sudden creation by nature
(b) accumulation of variations over several generations
(c) clones formed during asexual reproduction
(d) movement of individuals from one habitat to another
4. In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of (1)
(a) heat energy (b) light energy (c) chemical energy (d) mechanical energy
5. Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as (1)
(a) eutrophication (b) pollution (c) biomagnification (d) accumulation
6. What is the decomposers in an ecosystem ? (1)
7. Name two compounds that cause ozone depletion (1)
8. Differentiate between biodegradable and non-biodegradable substances. Cite examples. (2)

13. (a) Explain Hugo De Vries' Mutation Theory ? (2)
- (b) Explain Lamarck's theory (3)