

**MILESTONE ACADEMY**  
**VACATION HOMEWORK**  
**SCIENCE**

CLASS – XI

Date of submission: -29.10.25

### ENGLISH

1. Research on the Egyptians civilizations –with particular reference to Tut's Mummy and its discovery. Stick pictures.
2. Research on Khushwant singh's life and works.
3. Can the act of stealing be ever justified? Give your views in the context of reading of The Summer of the Beautiful White Horse.
4. Design a poster as an appeal for conserving water as most parts of India are facing serious problems and have been hit by drought
5. Critical analysis of chapter 'Mother's Day'. (Presentation)

### MATHS

1. Prove that the following system of linear inequalities has no solution:  
 $x + 2y \leq 3$ ,  $3x + 4y \geq 12$ , where  $x \geq 0$ ,  $y \geq 1$
2. If  $x$  is real number and  $|x| < 3$ , then
  - (a)  $x \geq 3$
  - (b)  $-3 < x < 3$
  - (c)  $x \leq -3$
  - (d)  $-3 \leq x \leq 3$
3. Find the value of  $r$ , If the coefficients of  $(r - 5)^{\text{th}}$  and  $(2r - 1)^{\text{th}}$  terms in the expansion of  $(1 + x)^{34}$  are equal.
4. Find  $x$ , if  $T_{11}$  and  $T_{12}$  in the expansion of  $(2 + x)^{50}$  are equal.
5. A boy has 3 library tickets and 8 books of his interest in the library. Of these 8, he does not want to borrow Mathematics Part II, unless Mathematics Part I is also borrowed. In how many ways can he choose the three books to be borrowed?
6. Find the number of different words that can be formed from the letters of the word TRIANGLE, so that no vowels are together.
7. Calculate how many numbers are there between 99 and 1000 having atleast one of their digits 7
8. Find the sum of the series  $(3^3 - 2^3) + (5^3 - 4^3) + (7^3 - 6^3) + \dots$  to
  - (i)  $n$  terms
  - (ii) 10 terms

### PHYSICS

1. The acceleration due to gravity at the moon's surface is  $1.67 \text{ m/s}^2$ . If the radius of the moon is  $1.74 \times 10^6 \text{ m}$ , calculate the mass of the moon. Use the known value of  $G$ .
2. What are the various factors on which the value of  $g$  at any place on the earth depends?.
3. At what height above the earth's surface, the value of  $g$  is half of its value on earth's surface? Given: it's radius is  $6400 \text{ Km}$ .
4. Discuss the variation of  $g$  with depth.
5. How much will be the weight of a body at the center of the earth?
6. What is the relation between height  $h$  and depth  $d$  for the same change in  $g$ ?

### CHEMISTRY

1. Balance  $\text{Fe}^{2+} + \text{Cr}_2\text{O}_7^{2-} \rightarrow \text{Fe}^{3+} + \text{Cr}^{3+}$  in acidic medium by Oxidation Number method.
2. Balance  $\text{Cr}_2\text{O}_7^{2-} + \text{SO}_3^{2-} \rightarrow \text{Cr}^{3+} + \text{SO}_4^{2-}$  in Basic medium by ion exchange method.
3. Calculate oxidation no. of C in  $\text{CO}_3^{2-}$ .
4. Define disproportionation with an example.
5. Define redox reaction with types.
6. Define displacement and combination reaction in terms of oxidation number

### BIOLOGY

1. Why are bryophytes considered amphibians of the plant kingdom? Draw a well labelled diagram of any bryophyte.
2. Mycorrhiza and coralloid roots are found in which plants? What do these terms mean?
3. What is the importance of Algae? Draw a well labelled diagram of any green algae.
4. How is the leafy stage formed in mosses? How is it different from protonema?
5. Both gymnosperms and angiosperms bear seeds but then why are they classified separately?
6. What is heterospory? What is its significance?

## **INFORMATICS PRACTICES**

Q.1 What are list slices? What for can you use them? Q.2 What does each of the following expressions evaluate to? Suppose that L is the list

["These", ["are", "a", "few", "words"], "that", "we", "will", "use"].

1. L[1][0::2]      2. "a" in L[1][0]      3. L[:1]+L[1]      4. L[2::2]5      L[2][2] in L[1]

Q.3 Compare lists with strings. How are they similar and how are they different?

Q.4 Write a program that reverses a list of integers (inplace).

Q.5 What is the difference between sort() and sorted()?

## **COMPUTER SCIENCE**

1 Write a program to check a number whether it is palindrome or not.

2 Write a program to calculate the factorial of an integer NUMBER.

3 Write a recursive python program to test if a string is palindrome or not.

4 Write a program to read a text file line by line and display each word separated by '#'.

5 Write a program to count the number of vowels present in a text file.

## **HINDI ELECTIVE**

क. दिनांक 26.09.25 से 30.10.25 तक की खबरों को अखबार में देखते हुए कोई दो प्रेस विज्ञप्ति बनाइए।

ख. 'एक कदम विकसित भारत की ओर' विषय क

## **PHYSICAL EDUCATION**

1 Describe various assessment tools and instruments commonly used in physical education.

2 Discuss the importance of fitness testing by BMI calculation, or muscular strength assessments.

3 What do you understand by physiology and anatomy?

4 Differentiate between push up and modified pushup test?

5 Describe in detail, the types of testing done in Physical Education.

## **ENGINEERING GRAPHICS**

1. A Square Pyramid, having base with a 40 mm side and 60 mm axis is resting on its base on the HP. Draw its Projections when (a) a side of the base is parallel to the VP. (b) The sides of base are equally inclined to the VP[6]

2. A Hexagonal Prism having a base with a 30 mm side and 75 mm long axis, has an edge its base on the HP. Its axis is Parallel to the VP and inclined at 45 degree to the HP Draw its projections?

3. Construct an isosceles triangle ABC, ABC Having its base BC=40mm and sum of it's altitude and One side = 50mm.

4. Construct an isosceles right angled triangle ABC, having the difference of its hypotenuse and Side equal to 20mm.

5. A line AB is inclined to HP at 45° and parallel to VP, its top view is 65mm long. Its end A is 10mm from HP and 30mm from VP. Draw its elevation and plan in first quadrant and third quadrant. Also find the true length of the line.

## **POLITICAL SCIENCE**

Q1 What is constitution? Write its functions.

Q2 Why we need constitution?

Q3 How was the Indian constitution made?

Q4 Make a list of fundamental rights and all the fundamental rights thoroughly.

Q5 Explain the election system of India.

Q6 Write a short note on Independent Election commission.

Q7 What is Executive?

Q8 Why we need Parliament?

## **HISTORY**

Q1. Imagine and describe a day in the life of a craftsman in a medieval French town.

Q2. Compare the aspirations for women expressed by a woman (Fedele) and by a man (Castiglione). Did they have only women of a particular class in mind?

Q3. What were the issues on which the Protestants criticised the Catholic Church?

Q4. What were the features of humanist thought?

Q5. Describe the different scientific elements in the work of sixteenth century Italian artists.

