PHYSICS

Std 10 Chapter 1(A) : Moment of Force and Equilibrium Module 1.

POINTS TO REMEMBER :

1. Two types of motion of a rigid body when acted upon by a force: (a) linear or translational motion (b) rotational motion.
2. In a translational motion, on application of a force, an object starts moving in a straight line with all its particles moving along parallel lines in the direction of force with the same speed.
3. In rotational motion when a force is applied on an object, fixed at a point, the object starts rotating about that point with its particles moving along concentric circles with different speeds.
4. Factors affecting the turning of a body : a) The magnitude of force applied and b) The perpendicular distance between the line of action of force from the axis of rotation.
5. Unit of moment of force : a) SI unit – Nm, b) CGS unit – dyne cm. If force is measured in gravitational unit, then the unit of moment of force in SI system is kgf x m and in CGS system, the unit is gf x cm.
6. 1 Nm = 10^7 dyne cm.
   1 kgf x m = 9.8 Nm
   1gf x cm = 980 dyne cm
7. Conventionally if the effect of force on the body is to turn it anticlockwise, moment of force is called the anticlockwise moment and it is taken positive. While if the effect of the force on the body is to turn it clockwise, the moment of force is called the clockwise moment and it is taken as negative.
8. Couple : moment of couple is equal to product of either of the forces and the perpendicular distance(called the arm of the couple) between their lines of action, i,e , Moment of couple=either force x perpendicular distance between line of action of force and axis of rotation.
9. An object is said to be in equilibrium if number if forces acting on it produce no change in its state of rest or of uniform motion (translational or rotational). An object in equilibrium is not necessarily in rest while an object at rest is necessarily in equilibrium.
10. An object is said to be in static equilibrium if it remains in the state of rest under the influence of the applied force.
11. An object is said to be in dynamic equilibrium if it remains in the state of uniform motion (translational and rotational) , under the influence of the applied force.
12. Under the action of a set of parallel forces, the two conditions for an object to be in equilibrium are: (i) the resultant of all the forces acting on the body must be equal to zero. (ii) resultant moment of all the forces acting on the body about a point should be zero, I,e, the sum of anticlockwise moments about any point must be equal to the sum of clockwise moments about the same point.

Assignment: Concise Physics EXERCISE-1(A) Question no. 1 to 27.

BIOLOGY STD-10

Q1)What is the law of dominance?Give the scientific name of the plant on which Mendel conducted the Experiments on Heridity.

Q2)Write the difference between phenotype and genotype.

Q3)Mention two functions of root.Differentiate between permeable and semipermeable membrane.

Q4)What is osmosis?How does osmosis help plants?

Q5)Which wavelengths of light are best and least for Photosynthesis to occur?

Q6)Draw the structure of chloroplast and label it?

Q7)What are the end product of Photosynthesis?

CHEMISTRY (CLASS - 10)

PERIODIC TABLE, PERIODIC PROPERTIES AND VARIATIONS OF PROPERTIES

Q1. State Mosley's law.(key word: ATOMIC NUMBER)

Q2. What are Bridge elements? Give examples.

(Diagonal relationship)

Q3. Mention the GROUP of the following:

a. Halogen (group 17)
b.Alkali metals (group 1)
c. Noble gas (group 18)
d. Alkaline earth metal (group 2)

Q4. How many groups andperiods does modern periodic table have?

(Eighteen groups and seven periods and the seventh period is incomplete period)

Q5. What do you mean by periodicity? What is the cause of Periodicity?

(key words:regular intervals,gradual variations) refer to book.

Q6.The following questions refers to the periodic table:

a) Name the first element of period 4. (K)
b) How many elements are present in the second period? (Eight)
c) Name the most metallic element of the third period. (Na)
d) Write the formula of the sulphide of the element "X" placed in group 2. (XS)
e) What type of bonding is present in the chloride of an element X whose atomic number is 12? (Formula: XCl_2, bonding is electrovalent – X donates electrons and chlorine accepts electron)

Q7. A, B, C are three atoms with 19, 17, 18 electrons. Without identifying them, answer the following questions:

a) What is the type of bond between A and B? (ionic)
b) What is the formula of the phosphate of "A"? (A_3PO_4)
c) Which one is an inert element? (C)
d) Mention the period and group of B and C.
(B: period – 3, group – 17; C: Period – 3, group – 18)
e) Draw the electron dot diagram for the formation of the oxide of A.
(Hint: Formula of oxide of A will be A_2O and bonding is electrovalent)

Q8.

Choose the most appropriate answer from [SO_2, SiO_2, Al_2O_3, CO, NO, Na_2O]
A covalent oxide of a metalloid.
An oxide which when dissolved in water forms acid.
A basic oxide.
An amphoteric oxide.

Answer

A covalent oxide of a metalloid. - SiO_2 (Si is a metalloid)
An oxide which when dissolved in water forms acid. - SO_2 ($SO_2 + H_2O \rightarrow H_2SO_3$)
A basic oxide. - Na_2O ($Na_2O + H_2O \rightarrow 2NaOH$)
An amphoteric oxide. - Al_2O_3 (shows both acidic and basic properties)

Q9.An element has atomic number 16.

a) The period to which it belongs

(Electronic configuration – 2,8,6. Here three shells are present so period is 3)

b) The group. (Answer: 16)

c) Identify the element. (Answer: Sulphur)

d) Write the formula of the two oxides of Sulphur. (Answer: SO_2 and SO_3)

Q10. An element X belongs to period 2 and group 15.

a) Identify and name the element. Write the formula of its hydride. (Answer: NH_3)

b) Give one test of ammonia gas. [Answer: NH_3 (Ammonia) turns Nessler's reagent brown]

c) Write the equation for the manufacture of ammonia.

(Ammonia is manufactured by Haber's process

$N_2 + 3H_2 \rightleftharpoons 2NH_3 + \Delta$

- Temperature : 450^0C
- Pressure : 200 – 900 atm
- Catalyst : Iron
- Promoter : Mo

COMPUTER APPLICATIONS

STD 10

Q1. Write a menu driven program to accept a number and check whether it is a prime number or a perfect number as per user's choice.

(Note: A perfect number is a number which is equal to the sum of its factors excluding the number itself. E.g: 6 → 1 + 2 + 3 = 6)

Q2. Write programs to display the following patterns:

iv.
```
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
```

iii.
```
5
4 4
3 3 3
2 2 2 2
1 1 1 1 1
```

ii.
```
    5
  4 5
3 4 5
2 3 4 5
1 2 3 4 5
```

i.
```
1 2 3 4 5
  1 2 3 4
    1 2 3
      1 2
        1
```

Q3. Write a menu driven program to accept a number and check whether it is an Evil number or Odious number as per the user's choice.

Evil number: An Evil number is a positive whole number which has even number of 1's in its binary equivalent. E.g: 9 → Binary equivalent is 1 0 0 1, which contains even number of 1's.

Odious number: An Odious number is a non-negative number that has an odd number of 1's in its binary expansion. Example: 14 is an Odious number as its binary expansion is 1 1 1 0, which contains odd number of 1's (i.e three 1s).

Std. 10 (Project work) Economic Applications
Discuss the factors of production and how these are important in the production process. (Land, Labour, Capital and Entrepreneur)

STD IO ENGLISH LANGUAGE.

Write a composition in approximately 5 pages, golden Eagle paper.

1. It is better to be born rich than talented. Give your views for or against the statement.
2. You are sleeping in your bedroom. Someone knocks at your door. You wake up to see a boy who says he has come from outer space. Write an account of what he tells about his life in space.

STD 10 ENGLISH LITERATURE

Write each composition in approximately 5 pages, golden Eagle paper.

1. Discuss The Merchant of Venice' as a drama of friendship, trust, mercy,money and dual responses.
2. What is the central theme of 'Television' by Roald Dahl? How has the poet brought out the theme?

Geography Std X

Map Pointing - **On an outline map of *INDIA* mark and name the following : (Use colours - BLUE for rivers and all water masses/direction of Winds, BROWN for mountains and peaks, ORANGE for plateaus, YELLOW for plains/desert, RED for passes/longitudes/latitudes : PLEASE USE ONLY PENCIL COLOURS)**

Syllabus : Mountains, Peaks, and Plateaus/ Plains/ Desert/ Rivers/Water Bodies/

Passes/ Latitudes and Longitudes/ Direction of Winds (pg no. "v" = in

The beginning of the Book)

Maps Drawn – Latitude and Longitude (pg-253), Mountains (pg-254), Plateaus

(pg no. 255), Water Bodies (pg no. 256), Rivers (pg no. 257), Direction

Of S.W. & N.E. MONSOON Winds (pg no. 260 & 261)

Topography – Representative Fraction (pg 211), Spot Heights, Bench Marks Contour

Lines (pg 216), Contour Intervals (pg 217), Eastings and Northings

(pg 229), FOUR & SIX figure grid difference (pg 230), Conventional

SIGNS and SYMBOLS (pg nos. 232, 233, 234 & 235), COLOURS AND

THEIR SIGNIFICANCE (pg 235), OCCUPATIONS (pg 236)

Important Features : Drainage Patterns (pg 234/240), Types of Settlement (pg 234/242), Boundaries (pg 232), Roads and Railways (pg 232), Water bodies – (iv), (ix), (xiv), (xv), (xviii), Occupations (pg 244 & 245)

Important : *Chapter 1*– Only Map pointing/ No question will be asked from this chapter

CHAPTER 2 : Climate of India

1. **General Features (pg 23)**
2. **Factors that affect the CLIMATE OF INDIA (23, 24 & 25)**
3. **Climate of India (pg 25)**
4. **Seasons of India (pg 25 onward)**
5. **Local Winds (pg 27)**
6. **The South West Monsoon (pg 27, 28, 29)**
7. **The Retreati8ng Monsoon (pg 30 onward)**
8. **Reason for THAR DESERT (pg 31)**
9. **Characteristics of Indian Monsoon (pg 31)**

HOMEWORK : Write down in your Geography Homework Copy both the questions and the answers of the following questions of the *exercises* :- (pg no. 34 & 35)

A : 1, 2, 3, 6, 7, 9, 11, 12, 15, 17, 19, 21, 22, 25, 27, 28, 32, 37, 38, 40,

Std - 10

प्रश्न-1 पर्यावरण संतुलन के लिए उचित सुझाव देते हुए अपने मित्र को 150 शब्दों में पत्र लिखो।

प्रश्न-2 नगर निगम अधिकारी को मुहल्ले के सफाई के संबंध में 150 शब्दों में पत्र लिखो।

HISTORY

1. Why did the ' Doctrine of Lapse' become a political cause for the result of 1857?

2. Why did the Indian craftsmen and artisans start resenting the British rule? Give two reasons.

3. Mention any two social reforms advocated by the British which affected the religious traditions of the Indian people.

4. " The introduction of Enfield Rifles was the major factor in causing the great upsurge of 1857." Discuss.

5. What was the General Service Enlistment Act?

6. State the immediate cause for the revolt of 1857.

7. With reference to the British rule in India, mention two economic factors, which became the causes of The First War of Independence, 1857.

8. Explain the political causes that led led to the uprising of 1857.

9. The First War of Independence of 1857 was the culmination of people's dissatisfaction with the British rule. In this context, discuss about the economic causes.

10. The Revolt of 1857 can be attributed to many causes. Explain the military causes which led to the revolt of 1857.

11. Can a person X be appointed as a minister at the centre by the President of India, when X is not a member of both the houses ? If yes, then how ?

12. What is meant by the policy of appeasement ? Can such a policy be justified ?

13. War always gives rise to another war. In this context, explain how the first world war gave rise to the second world war ?

14. Indian constitution makers chose the parliamentary form of government for India. What may have been the possible reasons to choose such a system ? What other alternative systems of government are there ?

15. What is the difference between a vote of no confidence and a censure motion ?

MATHS CLASS X

General directions for the students :-Whatever be the notes provided , everything must be copied in the Maths Copy and then do the Home work in the same Copy.

CHAPTER 2 . (BANKING)

Here we are going to study about a scheme offered by the Bank for the public to save their hard earned money. In this scheme public is allowed to deposit a fixed amount (P) every month for a particular period (n) . At the end of the period Bank will return an amount known as Maturity amount , which includes the amount deposited and its interest. This scheme is known as Recurring (or Cumulative) Deposit Scheme.

Notation:-

Monthly instalment (P) , Period or Time (n) in months , Rate (r% p.a) ,

Maturity amount (M.A)

Formula:- Maturity amount = Investment + Interest

$$M.A = P \times n + \frac{P \times n(n+1)r}{2 \times 12 \times 100}$$

Exercise 2. (Text Book : ML Aggarwal Understanding Maths 2020 Edition)

Q1. Given P=350 , n= 12 months , r= 8% p.a

$$M.A = P \times n + \frac{P \times n(n+1)r}{2 \times 12 \times 100}$$

$$= 350 \times 12 + \frac{350 \times 12 \times 13 \times 8}{2400}$$

= 4200+ 182

= Rs 4382.

Q7. Given P=300 , n= 2x12=24 months , M.A= 7725

$$M.A = P \times n + \frac{P \times n(n+1)r}{2 \times 12 \times 100}$$

$$7725 = 300 \times 24 + \frac{300 \times 24 \times 25 \times r}{2400}$$

7725 = 7200 + 75r

r=7% p.a

Q12. Given P= Rs 2000 , R=10% p.a , M.A= Rs 83100

$$M.A = P \times n + \frac{P \times n(n+1)r}{2 \times 12 \times 100}$$

$$83100 = 2000n + \frac{2000n(n+1)10}{2400}$$

$$831 = 20n + \frac{n(n+1)}{12}$$

$$12 \times 831 = 12 \times 20n + n^2 + n$$

$$n^2 + 241n - 9972 = 0$$

$n^2 + 277n - 36n - 9972 = 0$ By splitting the middle term

$$n(n + 277) - 36(n + 277) = 0$$

$$(n - 36)(n + 277) = 0$$

$$n = 36 , -277$$

n= 36 months=3 years . -277 is not possible

HOME WORK

Exercise 2 . Question numbers 2,3,4,5,6,8,9,10, 11 and Chapter test.

MATHS PRACTICAL FOR CLASS X

Points to remember .

**Read and understand the experiment.*

**In the Maths Practical Copy write down AIM, MATERIAL REQUIRED , METHODOLOGY , TABULAR COLUMN and CONCLUSION on the ruled page. DIAGRAM and CALCULATION on the plane page.*

**Follow the PROCEDURE properly to get the correct conclusion.*

**MATHS PRACTICAL COPY must be a soft cover Lab copy with atleast 50 to 60 pages.*

EXPERIMENT NO.1

AIM: To find the relationship connecting the radius of the incircle , area of its circumscribed triangle and the semi-perimeter of the circumscribed triangle.

MATERIAL REQUIRED:

1) A pair of compasses 2) A ruler & a pencil 3)A setsquare.

METHODOLOGY:

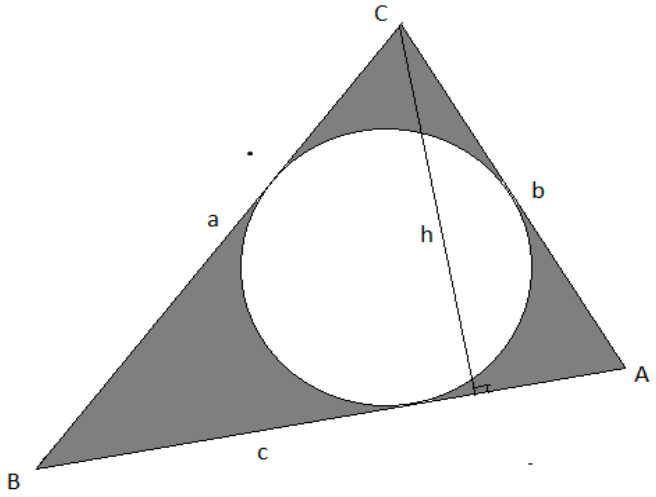
Area of a triangle $= \frac{1}{2} \times base \times height$

Semi-perimeter $= \frac{a+b+c}{2}$, where a, b and c are the lengths of the sides of a triangle.

PROCEDURE: Follow all these steps in order.

Step 1. Draw at least 4 circles and write down their radii.

Step 2. Draw three tangents to each of the circles so that they will form a triangle as shown in the fig..



Step 3. Draw one altitude of the triangle from a vertex to the opposite side by using a setsquare and measure its length.

Step 4. Measure the sides of the triangle formed in each case and note down in the observation table.

OBSERVATION TABLE AND CALCULATION:

Trial no.	Radius r	Sides a , b , c	Altitude h	$s = \frac{a+b+c}{2}$	$area\ \Delta = \frac{1}{2} \times b \times h$	r.s
1 2 3 4						

CONCLUSION:

(Hint: Observe the last two columns of the observation table and then write down the conclusion.)