DAV PUBLIC SCHOOL ,PTPS PATRATU

HOLIDAY HOMEWORK(2026-27)

CLASS- XII SCIENCE

MATHEMATICS (041)

PREPARE MIND MAP OF CHAPTER – RELATION, FUNCTION AND INVERSE TRIGONOMETRIC FUNCTION.

Section A: Relation and Functions

1. Define the following with examples:
   a) Relation
   b) Function
   c) Domain and Range
   d) One-one and Onto functions

2. Check whether the following relations are functions:
   a) R = {(1,2), (2,3), (1,4)}
   b) R = {(x, x^2) | x ∈ ℝ}

3. Determine whether the following functions are one-one, onto, or both:
   a) f(x) = 2x + 3
   b) f(x) = x^2 (x ∈ ℝ)
   c) f(x) = x^3

4. Find the inverse of the following functions (if exists):
   a) f(x) = 3x – 5
   b) f(x) = (x + 1)/(x – 1)
   c) f(x) = x^2 (x ≥ 0)

5. If f(x) = x + 2 and g(x) = 2x, find:
   a) (f ∘ g)(x)
   b) (g ∘ f)(x)

6. Verify that (f ∘ g)(x) ≠ (g ∘ f)(x) for given functions f(x) = x +1 and g(x) = 2x-5.

7. Prove that a function is invertible if and only if it is bijective.

8. Find the domain and range of:
   f(x) = √(4 – x^2)

Section B: Inverse Trigonometric Functions

1. Define inverse trigonometric functions.

2. Write principal value branches of:
   a) $\sin^{-1}x$
   b) $\cos^{-1}x$
   c) $\tan^{-1}x$

3. Evaluate:
   a) $\sin^{-1}(1/2)$
   b) $\cos^{-1}(-1)$
   c) $\tan^{-1}(1)$

4. Prove the following identities:
   a) $\sin^{-1}x + \cos^{-1}x = \pi/2$
   b) $\tan^{-1}x + \tan^{-1}(1/x) = \pi/2$ $(x > 0)$

5. Evaluate:
   a) $\sin^{-1}(3/5) + \cos^{-1}(4/5)$
   b) $\tan^{-1}(1/\sqrt{3}) + \tan^{-1}(\sqrt{3})$

6. Solve for x:
   a) $\sin^{-1}x = \pi/6$
   b) $\tan^{-1}x = \pi/4$

7. Express in simplest form:
   $\tan^{-1}((x + y) / (1 - xy))$

8. Prove:
   $\sin^{-1}x = \tan^{-1}(x / \sqrt{(1 - x^2)})$

SUB- BIOLOGY

1) **How does Microsporogenesis differs from Megasporogenesis?**
2) **Explain the process of formation of mature embryo sac.**
3) **What is pollination ? What are its different types?**
4) **What is the difference between spermatogenesis and oogenesis?**
5) **What are the three phases of menstrual cycle?**
6) **Name the pregnancy hormones. Also write their functions.**
7) **What do you mean by Monohybrid cross? Explain it by writing its cross.**
8) **What is Incomplete dominance? Explain it by writing its cross.**

CHEMISTRY

SECTION –A : CONCEPT BUILDING
1Define the following terms with example
Solution
Henry law
Raoult law
Ideal and non ideal solution
SECTION B:NUMERICAL PRACTICE
1 Calculate molarity of a solution containing 5g NaOH in 500ml solution
2. A Solution contain 1 mole of solute in2 kg solvent .find molality.
SECTIONC: GRAPH AND DIAGRAM
1 Positive deviation graph
Negative deviation graph
SECTION –C CREATIVE TASK
1 MAKE A Chart on colligative properties
2 prepare a formula sheet
3. Collect examples of solution from daily life
SECTION D: EXTRA TASK
1Solve 5 years board question with answer

3. **make a mind map of the chapter**

CLASS XII- ENGLISH

Q1. Mrs. and Mr. Goel want to celebrate their son Atul's 18th birthday. Draft a suitable formal invitation giving all necessary details.

Q2. As Archit, write a suitable reply to the above invitation expressing your inability to attend the celebrations due to some prior engagements.

Q3. 'We have a great deal to reproach ourselves with.' (The last Lesson) The speaker's tone here is that of –

a. Disdain
b. Reproach
c. Repentance
d. Pride

Q4. "His dream looks like a mirage amidst the dust streets of Firozabad." Implies_

a. His dream has been reduced to dust
b. His dream is only an illusion, unlikely to be achieved.
c. He dreams of a mirage which is not a reality.
d. None of the above.

Q5. 'The Lost spring ' has been subtitled "stories of stolen Childhood".How do Saheb and Mukesh's lives justify this statement?

Q6. How important is it to hold on to one's language and culture? How is it a key to our freedom?

Q7. Assignment_ Prepare a report on present day scenario of child labour in India, giving all data and illustrations, in A4 sheet.

SUBJECT: PHYSICS

1. Write 8 practical in practical notebook.
2. Write 6 activities in practical notebook.

Investigatory Project (ANY ONE)

Suggested Investigatory Projects

1. To study various factors on which the internal resistance/EMF of a cell depends.

2. To study the variations in current flowing in a circuit containing an LDR because of a variation in (a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance). (b) the distance of an incandescent lamp (of fixed power) used to 'illuminate' the LDR.

3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equi convex lens (made from a glass of known refractive index) and an adjustable object needle.

4. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.

5. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.

6. To estimate the charge induced on each one of the two identical Styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law.

7. To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency.

8. To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer.

Sub: IP(065)

Q1	Write five python Series program in different ways.
Q2	Write Five python DataFrame program in different ways.
Q3	Complete notes copy.

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