Scholars Global School
Enlightening • Empowering • Enterprising

WINTER BREAK HOLIDAY HOMEWORK

Session: 2025-26

Class XI (Commerce)

English

Instructions: Attempt all questions to the best of your ability.
Pay attention to grammar, spelling, and presentation.
All work should be done on separate single A3 size sheets

Have a wonderful and productive holiday!

Total Marks: 20

1- **English + Life Skills**: Interview a grandparent or elder about their teenage years especially what kind of medical facilities they had at that time[Birth]. Write a one-page reflection comparing their experiences with yours

2- **Letter to the Future**: Write a letter to the Editor of a newspaper dated 2050, expressing concern about an issue you think will dominate the future (climate, AI, social media, etc.)

Grading:

- Creativity and effort: 6
- Grammar and spelling: 4
- Content and organization: 6
- Neatness and presentation: 4

MATHEMATICS CHAPTER-1: SET THEORY

Q.1	If U = {1,2,3,4,.....,10} is the universal set for the sets A = {2,3,4,5} and B = {1,2,3,4,5,6}, then verify that (A∪B)' = A'∩B'.
Q.2	If A = {1, 2, 3, 4, 5}, B = {1, 3, 5, 8}, C = {2, 5, 7, 8}, verify that A– (B ∪ C) = (A–B) ∩ (A –C).
Q.3	Which type of set is the set of odd natural numbers divisible by 2?
Q.4	Out of 20 members in a family, 11 like to take tea and 14 like coffee. Assume that each one likes at least one of two drinks. how many like, only tea and not coffee?
Q.5	Decide, among the following sets are subsets of one and another : A={x : x ∈ R and x satisfy : x^2 - 4x + 3 = 0} B = {1,3}, C = {1,3,5}, D = {4,5,6}.
Q.6	A market research group conducted a survey of 1000 consumers and reported that 720 consumers like product A and 450 consumers like product B. What is the leastnumber that must have liked both products?
Q.7	Let A and B be two finite sets such that n(A – B) = 30, n (A ∪ B) = 180, n(A ∩ B) = 60, find n(B). (2 marks)
Q.8	Write the set A = {x : x ∈ N and x^2 < 25} in roster form.
Q.9	In a survey it was found that 21 people liked product A, 26 liked product B and 29 liked C. If 14 people liked products A and B, 12 people liked products C and A, 14 people liked products B and C and 8 liked all the three products. Find how many liked (i) product C only (ii) product A and C but not product B (iii) at least one of three products.
Q.10	If A × B = {(p,q),(p,r),(m,q),(m,r)}, find A and B.
Q.11	In a survey of 60 people, it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper I, 9 read both H and I,11 read both H and T, 8 read both T and I, 3 read all three newspapers. Find: (i) the number of people who read at least one of the newspapers. (ii) the number of people who read exactly one newspaper.
Q.12	In a committee, 50 people speak French, 20 speak Spanish and 10 speak both Spanish and French. How many speak at least one of these two languages?
Q.13	In a survey of 600 students in a school, 150 students were found to be taking tea and 225 taking coffee, 100 were taking both tea and coffee. Find how many students were taking neither tea nor coffee?
Q.14	If A = {x : x is a prime number $\forall$ x $\in$ N}, then find A^c.
Q.15	If X and Y are two sets such that n(X) = 17, n(Y) = 23 and n(XUY) = 38, find n(X∩Y).
Q.16	From the sets given below, select equal sets : A={2,4,8,12}, B={1,2,3,4}, C={4,8,12,14}, D={3,1,4,2}, E={-1,1}, F={0,a}.

Q.17 Draw appropriate Venn diagram for each of the following:

(i) $(A \cup B)'$

(ii) $A' \cap B'$

(iii) $(A \cap B)'$

(iv) $A' \cup B'$

Q.18 Show that A ∩ B = A ∩ C need not imply B = C.

Q.19 Let U = {1,2,3,4,5,6,7,8,9,10} and A = {1,3,5,7,9}. Find A"".

Q.20 In a town of 840 persons, 450 persons read Hindi, 300 read English and 200 read both. Find the number of persons who read neither.

CHAPTER-2: RELATIONS & FUNCTIONS

Q1. If A = {2, 3}, B = {4, 5}, C = {5, 6} Find (i) A x B (ii) A x (B U C) (iii) A x (B U C)
Find (i) A x (B U C) = (A x B) U (A x C)
(ii) A x (B – C) = (A x B) – (A x C)

Q2. If the ordered pairs (x, -1) and (5, y) belong to the set {(a, b) : b = 2a – 3}, find the values of x and y.

Q3. If A and B are two sets having 3 elements in common. If n(A) = 5, n(B) = 4, find n (A x B) and n (A x B) ∩ (B x A)

Q4. Determine the domain and range of the following relations:-

(i) $R_1 = \left[\left[x, \frac{1}{x} \right] : 0 < x < 6, x \in N \right]$ (ii) $R_2 = \left[\left[x, x^3 \right] : x \text{ is a prime number less than a } 10 \right]$

Q5. Write all possible relation from A= {1, 2} to B = {0}.

Q6. How many relations are possible from a set A of n elements to another set B of n elements ?

Q7. Find the domain for which the functions $f(x) = 3x^2 - 1$ and $g(x) = 3 + x$ are equal.

Q8. Express the following functions as set of ordered pairs and determine their ranges.
(a) $f : A \to R$, $f(x) = x^2 + 1$, where A = {-1, 0, 2, 4}
(b) $g : A \to N$, $g(x) = 2x$, where A = {x : x ∈ N, x ≤ 10}

Q9. Let a function f be defined by $f(x) = \frac{x}{x^2 + 1}$, $x \in R$

Find (i) $f\left(\frac{1}{x}\right)$ $x \neq 0$ (ii) $f(2x)$ (iii) $f(x - 1)$

Q10. If $f(x) = \frac{x-1}{x+1}$, $x \neq -1$, then show that $f(f(x)) = \frac{-1}{x}$, provided that $x \neq 0$

Q11. Let $f(x) = x^2$ and $g(x) = 2x + 1$ be two real functions find (i) (f + g) (x) (ii) (f – g) (x) (iii) (f g) (x)

Q12. If a real function f is defined by $f(x) = (|x| - x) / 2x$, find its range.

Q13. Find the domain of each of the following real valued functions :-

(i) $f(x) = \frac{1}{x+2}$, (ii) $f(x) = \frac{x-1}{x-3}$,

(iii) $f(x) = \frac{2x-3}{x^2-3x+2}$, (iv) $f(x) = \frac{x^2+3x+5}{x^2-5x+4}$,

(v) $f(x) = \sqrt{x-2}$, (vi) $f(x) = \frac{1}{\sqrt{1-x}}$, (vii) $f(x) = \sqrt{4-x^2}$,

Q14. Find the domain and range of the real function f(x) given by

(i) $f(x) = \frac{x-2}{3-x}$

(ii) $f(x) = \frac{1}{\sqrt{x-5}}$

(iii) $f(x) = \sqrt{16-x^2}$

(iv) $f(x) = \frac{x}{1+x^2}$

(v) $f(x) = \frac{3}{2-x^2}$

(vi) $f(x) = \frac{x^2-9}{x-3}$

Q15. If $R = \{(x, y): x, y \in I,\ 4x^2 + 8y^2 = 36\}$, then represent R by arrow diagram.

Q16. Give $A = \{-2, -1, 0, 1, 2\}$ and $B = \{-3, -1, 1, 5\}$. List all elements of $f\{(x, y) : y = 2x^2 - 3, x \in A, Y \in B\}$. Is f a function ?

CHAPTER-3: TRIGONOMETRY

1. Radian measure of $-37^0 30'$

(a) $\frac{-3\pi}{8}$ (b) $\frac{-5\pi}{24}$ (c) $\frac{-7\pi}{8}$ (d) $\frac{-3\pi}{7}$

2. Length of an arc of circle of radius 5 cm subtending an angle of 15^0

(a) $\frac{-7\pi}{5}$ (b) $\frac{\pi}{5}$ (c) $\frac{5\pi}{11}$ (d) $\frac{5\pi}{12}$

3. If $\tan A + \cot A = 4$ then $\tan^4 A + \cot^4 A =$

(a) 110 (b) 191 (c) 80 (d) 194

4. If $\sin x = \frac{12}{13}$, x lies in II quadrant then, value of cosx is

(a) $\frac{-13}{5}$ (b) $\frac{13}{5}$ (c) $\frac{-5}{13}$ (d) $\frac{5}{5}$

5. If $\sec x = x + \frac{1}{4x}$ then $\sec x + \tan x =$

(a) x or $\frac{x}{x}$ (b) x or $\frac{1}{2x}$ (c) x or $\frac{1}{x}$ (d)none

6. If $\tan x = \frac{-1}{\sqrt{5}}$ and x lies in IV quadrant then $\cos x =$

(a) $\frac{\sqrt{5}}{\sqrt{6}}$ (b) $\frac{5}{\sqrt{6}}$ (c) $\frac{1}{\sqrt{6}}$ (d) $\frac{1}{2}$

7. If A , B and C are three angles of a triangle then $\frac{\sin A - \sin C}{\cos C - \cos A} =$

(a) $\tan B$ (b) $\tan C$ (c) $\cot C$ (d) $\cot B$

8. $\sin\frac{\pi}{10}\sin\frac{13\pi}{10} =$

(a) $\frac{7}{11}$ (b) $\frac{-1}{4}$ (c) $\frac{-1}{5}$ (d) $\frac{-1}{3}$

9. General solution of $\tan 3x = -1$ is

(a) $\frac{n\pi}{3} - \frac{\pi}{2}$ (b) $\frac{n\pi}{3} + \frac{\pi}{12}$ (c) $\frac{n\pi}{2} + \frac{\pi}{12}$ (d) $\frac{n\pi}{3} - \frac{\pi}{12}$

11. Solve $\cos x + \cos 3x - \cos 2x = 0$

12. Show that $\sin^2 24^0 - \sin^2 6^0 = \frac{\sqrt{5}-1}{8}$

13 If $\tan\frac{x}{2} = -\frac{3}{4}$, $\pi < x < \frac{3\pi}{2}$, find $\sin\frac{x}{2}$ and $\cos\frac{x}{2}$

14. Show that $\frac{\sin 5A - \sin 3A}{\cos 5A + \cos 3A} = \tan A$.

15 Show that $\cot 4x\ (\sin 5x + \sin 3x) = \cot x\ (\sin 5x - \sin 3x)$

16. If $\sin x = n \sin(x + 2\alpha)$ then prove that $\tan(x + \alpha) = \frac{1+n}{1-n}\tan\alpha$

17. Show that $\frac{\cos 6x + 6\cos 4x + 15\cos 2x + 10}{\cos 5x + 5\cos 3x + 10\cos x} = 2\cos x$

18. Show that $\sin 4x = 4\sin x \cos^3 x - 4\cos x \sin^3 x$

19. Prove that $\tan 6^0 \tan 42^0 \tan 66^0 \tan 78^0 = 1$

20. If $\tan A = \frac{1-\cos B}{\sin B}$, find the value of tan2A

PSYCHOLOGY

INSTRUCTIONS: Do all work neatly in a separate notebook or on A4 sheets. Answers must be written in your own words. Focus on application of concepts. Diagrams and examples may be used wherever suitable.

PART A: ACTIVITY (Do ANY ONE)

Activity 1: Psychology Around Me – Observe one behaviour during your winter break (your own or someone else's). Write what the behaviour was, which psychological concept it relates to (Learning, Memory, Motivation or Emotion), and explain the behaviour using the concept studied.

Activity 2: Memory Experiment – Memorise a list of 8–10 words using any two methods such as repetition, chunking or making a story. Write which method helped you remember better and why you think it was effective.

Activity 3: Emotion Diary – For one day, note any two emotions you experienced. For each emotion, write the situation, emotion felt, bodily changes and behavioural response.

PART B: APPLICATION-BASED ASSIGNMENT

Answer the following questions in 40–50 words each.

LEARNING

1. Rohan avoids touching a hot kettle after burning his hand once. Identify the type of learning involved and explain how learning occurred.
2. Meera starts completing her assignments on time because her teacher praises her in front of the class. Identify the learning process and the type of reinforcement used.
3. A child learns to say "thank you" by observing elders using polite language. Identify the learning theory and explain the role of observation.

MEMORY

4. Aarav remembers his childhood phone number but forgets what he studied yesterday. Identify the types of memory involved and justify your answer.
5. During an exam, Riya is unable to recall answers despite studying well. Which memory process is affected? Give one psychological reason.
6. Rahul mixes up answers from two similar chapters during the exam. Identify the type of forgetting involved and explain briefly.

MOTIVATION

7. Neha practices dance daily because she enjoys it and not for rewards. Identify the type of motivation and explain.
8. Aman studies harder after failing a test to avoid scolding from his parents. Which motivational factor is influencing his behaviour?
9. Despite repeated failures, a student continues preparing seriously for a competitive exam. Explain this behaviour using motivational concepts.

EMOTION

10. Before giving a speech, a student experiences sweating, fast heartbeat and nervousness. Identify the emotion and mention two components of emotion visible here.
11. A child feels sad after losing a game but becomes happy when friends comfort him. Explain this emotional change.
12. During a horror movie, a person feels fear even though they know the situation is not real. Explain this reaction using emotional concepts.

ACCOUNTANCY

Final Accounts With Adjustment Problem:

The following balances have been taken from M/s Runway Shine Ltd.'s trial balance. Prepare a trading and P&L account and a balance sheet as of March 31, 2017.

Account Title	Amount Rs.	Account Title	Amount Rs.
Purchases	1,50,000	Sales	2,50,000
Opening stock	50,000	Return outwards	4,500
Return inwards	2,000	Interest received	3,500
Carriage inwards	4,500	Discount received	400
Cash in hand	77,800	Creditors	1,25,000
Cash at bank	60,800	Bill payable	6,040
Wages	2,400	Capital	1,00,000
Printing and Stationery	4,500	-	-
Discount	400	-	-
Bad debts	1,500	-	-
Insurance	2,500	-	-
Investment	32,000	-	-
Debtors	53,000	-	-
Bills receivable	20,000	-	-
Postage and Telegraph	400	-	-
Commission	200	-	-
Interest	1,000	-	-
Repair	440	-	-
Lighting Charges	500	-	-
Telephone charges	100	-	-
Carriage outward	400	-	-
Motor car	25,000	-	-
-	4,89,440	-	4,89,440

Adjustments to be made -

1. Further bad debts Rs.1,000. Discount debtors Rs.500 and make a provision on debtors @ 5%.
2. Interest received on investment @ 5%.
3. Wages and interest outstanding Rs.100 and Rs.200, respectively.
4. Depreciation charged on motor car @ 5% p.a.
5. Closing Stock Rs.32,500

ECONOMICS (Choose Any One Project)

Project 1

Task: Prepare a PowerPoint presentation on:

"Monopoly vs Competition in Digital Markets"

- Examples: Amazon, Google, etc.

Project 2

Task: Prepare a **questionnaire** (avoid calculative/mathematical questions) to conduct a comparative study on:

- Digital payments vs Cashless economy

BUSINESS STUDIES (Choose Any One Project)

Project 1

Task: Prepare a Brochure on **any two recently launched IPOs in India**. Include :

i) Details of the Businessman/Founder
ii) Evolution of the business
iii) Price of new share
iv) Growth and expansion
v) Future prospects of the business

Project 2

Task: Study any company's profile and prepare a **Prospectus** to be shared with potential investors. Include :

i) Ownership
ii) Capital
iii) Pricing policy
iv) Physical distribution
v) Promotional activities
vi) Working procedure
vii) Pictures of the business (owner & products)

Important Instructions

1. Practice your presentation (Brochure /Prospectus) (5–6 minutes) for the practical class after holidays.

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