PM SHRI KENDRIYA VIDYALAYA BSF JALALABAD
SUMMER HOLIDAY HOMEWORK 2026-27
CLASS: VI

SUBJECT: MATHEMATICS
CLASS VI – CRM Mathematics 2026–27

ANNEXURE 1
Q1. Which of the following is incorrect?
a) 1 lakh = 1 million b) 1 crore = 10 million c) 10 crore = 100 million d) 1 lakh = 100 thousand

Q2. Compare the given numbers and assign appropriate symbols. (< , >, =)
1. 2,304,908 *_*_ 2,340,908
2. 7,827,311 *_*_ 7,827,311

Q3. Case Study: Toy Factory Production
A toy factory produced toys in one week:
Monday = 1,240 toys
Tuesday = 1,365 toys
Wednesday = 1,195 toys
Questions:
1. On which day were the maximum toys produced?
2. How many toys were produced in total?
3. Which day's number is closest to 1,200?
4. Find the difference between Tuesday and Wednesday production.
5. Round 1,365 to the nearest hundred.

Q4. Write the standard form of the numbers.
a) 2000 + 100 + 80 + 5
b) 3000 + 400 + 70 + 1
c) 8000 + 80 + 9
d) 5000 + 700 + 20 + 5
e) 4000 + 600 + 0

Q5.1. If you begin at 54,546 and skip count backward alternately by 100 and 1000, which number do you get to after 11 skips?
2. 504558 = *_**_* ten thousands + *_**_* ones
3. Form the largest 5-digit number that has 5 in its tens place and its value is less than 80,000.

Q6. Case Study: Riya's Book Collection
Riya loves reading books. She counted the number of books in her home library:
Story books = 2,345

Science books = 1,875
History books = 1,240
Questions:
1. How many books does Riya have in total?
2. Which type of book is the least in number?
3. Arrange the numbers 2,345; 1,875; 1,240 in ascending order.
4. What is the place value of 3 in the number 2,345?
5. If Riya buys 155 more books, what will be the new total?

ANNEXURE 2
Q1. Convert the following:
a) 5 kg = *_*_ g
b) 3 kg 250 g = *_*_ g
c) 7000 g = *_*_ kg
d) 2 L = *_*_ ml
e) 4500 ml = *_*_ l
f) 6 rupees = *_*_ paise
g) 350 paise = *_*_ rupees
h) 1 kg = *_*_ g
i) 1 L = *_*_ ml
j) 10 rupees = *_*_ paise

Q2. Find the Perimeter:
a. Rectangle: length = 8 cm, width = 4 cm Perimeter = *_*_
b. Square: side = 6 cm Perimeter = *_*_
c. Rectangle: length = 10 cm, width = 5 cm Perimeter = *_*_

Q3. Find the Area:
a. Rectangle: length = 7 cm, width = 3 cm Area = *_*_
b. Square: side = 5 cm Area = *_*_
c. Rectangle: length = 9 cm, width = 4 cm Area = *_*_

Activity 1:
Measure the length and width of your notebook using a ruler.
Length = *_*_ cm Width = *_*_ cm
Area = *_*_ Perimeter = *_*_

Activity 2:
List 3 items at home and write which measuring tool you will use.
Example: Measuring Tool for Rice is Weighing Scale

ANNEXURE 3
Q1. What is the least common multiple (L.C.M) of 5, 4 and 16 by using prime factorization method?

Q2. Fill in the blanks:
I am a multiple of 7. I am less than 70. My tens digit is double of my ones digit. I am the number *_*_.

Q3. Fill in the blanks:
If the 4-digit number x27y is exactly divisible by 9, then the least value of (x + y) is *_*_.

Q4. Fill in the blanks:
The number *_*_ will come in the empty black circle. (Refer to the Venn diagram showing multiples of 5 and 6.)

Q5. Kirti is making identical balloon bunches for a party. She has 24 white balloons and 16 orange balloons. She wants each bunch to have the same number of balloons of each colour. What is the greatest number of bunches she can make if she uses every balloon?

Q6.1. There are three students of class 4 each with step distance of 8 cm, 16 cm and 40 cm in a race. Find the minimum distance they need to take to reach the same distance from the start line.
2. The capacity of three beakers are 8 L, 16 L and 40 L. Find the maximum capacity of the beaker which can measure the exact capacity of these beakers.

Q6. Case Study: Garden Plants
Riya has 24 rose plants and 36 marigold plants. She wants to plant them in rows so that each row has the same number of plants of each type and no plant is left.
Questions:
1. What is the HCF of 24 and 36?
2. What is the maximum number of rows she can make?
3. How many rose plants in each row?
4. How many marigold plants in each row?

ANNEXURE 4
Q.I. Fill in the Blanks:
1) Measurement of the Acute Angle is *_*_
2) Measurement of the Obtuse Angle is *_*_
3) Measurement of the Straight Angle is *_*_
4) The angles between two hands of a clock at 3 O'clock is *_*_
5) The angles between two hands of a clock at 8 O'clock is *_*_

http://Q.II. Classify the following angles as Acute Angle, Right Angle, Obtuse Angle and Straight Angle:
145° *_**_**_**_* 10° *_**_**_**_* 185° *_**_**_**_*
65° *_**_**_**_* 90° *_**_**_**_* 17° *_**_**_**_*
115° *_**_**_**_* 140° *_**_**_**__ 86° **_**_**_*___

95° *_**_**_**_* 70° *_**_**_**_* 145° *_**_**_**_*

http://Q.III. Draw the given angles:
A) 155° B) 95° C) 55° D) 125° E) 100° F) 90°

http://Q.IV. Draw hands of the following clocks when they make:
(i) Right angle [in first clock]
(ii) Acute angle [in second clock]
(iii) Obtuse angle [in third clock]

ANNEXURE 5
Q1. Write these fractions as decimals:
7/5 = *_*_ 1/5 = *_*_ 3/4 = *_*_

ANNEXURE 6
Q1. Complete the number patterns:
a. 12, 16, 20, 24, 28, *_**, **_*, *_*__
b. 48, 56, 64, 72, *_**, **_*, *_*__
c. 32, 37, 42, 47, *_**, **_*, *_*__
d. 29, 32, 35, 38, *_**, **_*, *_*__

Q2. Study the pattern and fill in the missing number:
3 → 9, 4 → 16, 5 → 25, 6 → ?

Q3. Make a number pattern for each given rule:
1. Start at 13 and add 12 each time: *__, **, **, *__
2. Start at 10 and add 50 each time: *__, **, **, *__

CLASS: VI – POST TEST
Q1. 4 rotis divided among 6 children gives each child—
a) 2/3 b) 3/4 c) 1/24 d) 2/6

Q2. The side of a square is 10 cm. How many times will the new perimeter become if the side of the square is doubled?
a) 2 times b) 4 times c) 6 times d) 8 times

Q3. The number line between 0 and 1 is divided into 5 equal parts. The 2nd box from the right side of 0 represents—
a) 1/5 b) 2/5 c) 3/5 d) 4/5

Q4. A rectangular swimming pool has an area of 300 sq m. If its width is 10 m, what is the length of the pool?
a) 80 m b) 60 m c) 30 m d) 40 m

Q5. The lowest form of 18/24 is—
a) 2/3 b) 3/4 c) 1/3 d) 3/8

Q6. Equivalent fraction of 2/7 is—
a) 3/7 b) 4/14 c) 2/9 d) 3/21

Q7. Add: 3/8 + 1/8 = ____
a) 7/8 b) 2/8 c) 5/8 d) 1/2

Q8. The right angle is—
a) 90° b) less than 180° but greater than 90° c) greater than 180° d) 180°

Q9. Draw a circle with radius 3.5 cm taking centre O.

Q10. Ram Lal has a rectangular piece of land. His son finds that its area is 18 sq units and perimeter is 18 units. What can be its length and breadth? Help him out.

Chapter 1: Patterns in Mathematics
Q1. Mathematics is described as the search for patterns and for the explanations as to why those patterns exist. Give TWO examples from everyday life where you use mathematics without realising it.

Q2. Look at the number sequences given below and write the NEXT THREE numbers in each sequence. Also write the rule you used.
a) 1, 1, 1, 1, 1, ... (All 1's) Next three: *_*, *_*, *_*
Rule: *_**_**_**_**_**_**_**_**_**_*__
b) 1, 3, 5, 7, 9, 11, ... (Odd numbers) Next three: *_*, *_*, *_*
Rule: *_**_**_**_**_**_**_**_**_**_*__
c) 1, 2, 3, 5, 8, 13, ... (Virahānka numbers) Next three: *_*, *_*, *_*
Rule: *_**_**_**_**_**_**_**_**_**_*__
d) 1, 2, 4, 8, 16, 32, ... (Powers of 2) Next three: *_*, *_*, *_*
Rule: *_**_**_**_**_**_**_**_**_**_*__

Q3. Why are the numbers 1, 3, 6, 10, 15, 21, ... called TRIANGULAR numbers? Why are 1, 4, 9, 16, 25, ... called SQUARE numbers? Explain using dot patterns.

Q4. It is observed that adding consecutive odd numbers starting from 1 always gives a perfect square. Fill in the table below and verify:
Sum of Odd Numbers | Result | Perfect Square?
1 | *_*_ | *_*_
1 + 3 | *_*_ | *_*_
1 + 3 + 5 | *_*_ | *_*_
1 + 3 + 5 + 7 | *_*_ | *_*_
1 + 3 + 5 + 7 + 9 | *_*_ | *_*_

Using this pattern, what is the sum of the first 10 odd numbers? *_*_

Q5. The Virahānka numbers (also known as Fibonacci numbers) are: 1, 2, 3, 5, 8, 13, 21, 34, …
a) What is the rule for forming this sequence? *_**_**_**_**_**_*_
b) Write the next four numbers: *_*, *_*, *_*, *_*
c) Add any two consecutive Virahānka numbers. What do you notice?

Q6. Look at the 'adding up and down' pattern below and answer the questions:
1 = 1
1 + 2 + 1 = 4
1 + 2 + 3 + 2 + 1 = 9
1 + 2 + 3 + 4 + 3 + 2 + 1 = 16
a) Which number sequence do the answers (1, 4, 9, 16, ...) belong to? *_**_**_**_*__
b) What will be the value of 1 + 2 + 3 + ... + 50 + ... + 3 + 2 + 1? *_**_**_**_*__
c) What will be the value of 1 + 2 + 3 + ... + 100 + ... + 3 + 2 + 1? *_**_**_**_*__

Q7. Match the shape sequences in Column A with their descriptions in Column B:
Column A – Shape Sequence | Column B – Description
Regular Polygons | Number of lines = triangular numbers
Complete Graphs (K2, K3, ...) | Number of small squares = square numbers
Stacked Squares | Number of sides starts at 3 and increases by 1
Koch Snowflake | Line segments multiply by 4 each step
Stacked Triangles | Number of small triangles = square numbers

Q8. The hexagonal numbers are: 1, 7, 19, 37, 61, ...
a) Find the next number in the sequence: *_*__
b) What happens when you multiply each triangular number by 6 and add 1?
(1×6)+1 = *_*, (3×6)+1 = *_*, (6×6)+1 = *_*, (10×6)+1 = *_*
c) What sequence do you get? *_**_**_**_**_**_*_

Q9. When we add up powers of 2 starting with 1, we get: 1, 1+2=3, 1+2+4=7, 1+2+4+8=15, ...
a) Continue the pattern for two more steps: *_*, *_*
b) Now add 1 to each result: 2, 4, 8, 16, ... What sequence is this? *_**_**_**_*__
c) Why does adding 1 always give a power of 2? Explain in your own words.

Q10. What happens when you start adding up the hexagonal numbers? i.e., 1, 1+7, 1+7+19, 1+7+19+37, ...
Fill in the blanks:
1 = *_*
1 + 7 = *_*
1 + 7 + 19 = *_*
1 + 7 + 19 + 37 = *_*
Which famous number sequence do you recognise in the answers? *_**_**_**_*__
Can you explain this using the picture of a cube?

SUBJECT: SANSKRIT
1. 10 जानवरों के संस्कृत में नाम लिखो।
2. 10 शब्दों का वर्ण वियोग करके लिखो।
3. 10 शब्दों के वर्ण संयोग करके लिखो।
4. संस्कृत में छात्र प्रतिज्ञा लिखो व याद करो।
5. संस्कृत में कोई 5 श्लोक अर्थ सहित लिखो।

SUBJECT: HINDI
1. दो दिन के अवकाश के लिए प्राचार्य को पत्र लिखो।
2. 10 मुहावरों का अर्थ लिखकर वाक्य में प्रयोग करो।
3. हिन्दी में छात्र प्रतिज्ञा लिखो व याद करो।
4. राष्ट्रगान लिखो व याद करो।
5. एक स्वरचित कविता लिखो।
6. प्रतिदिन हिन्दी की किसी पुस्तक का एक पृष्ठ बोल-बोलकर पढ़ें।

SUBJECT: SOCIAL STUDIES
Chapter-1
1. What are the four cardinal directions?
2. What is a map and how do we use it?
3. What are its main components?
4. What are coordinates? How can latitude and longitude be used to mark any location on Earth?
5. Name the four cardinal directions.
6. What is an atlas?
7. Why is it 5:30 pm in India when it is 12 pm in London?
8. What is the difference between local time and standard time?

Chapter-2
9. What are the five oceans mentioned in the text?
10. What is the most widespread colour on globe/picture of Earth, what does it represent?
11. Why is Earth called a unique planet?
12. What are the largest water bodies on Earth?
13. Give names of two parts of Indian Ocean on either side of India?
14. Name India's two major groups of Islands (NCERT page 33).
15. In which hemisphere is majority of Earth's water located?
16. Mention continent names.

SUBJECT: SCIENCE
Note: ALL WORK IN CLASSWORK NOTEBOOK

1. *Chapter-2:*
   a) Difference between Reticulate and Parallel Venation with examples.
   b) Draw neat labelled diagrams of Tap Root & Fibrous Roots.
   c) Features of Tree, Herb, Shrub.
   d) Difference between Monocot and Dicot.
   e) How Camel adapts in Hot Desert vs Cold Desert.

2. Draw 2 favourite animals as characters and write a creative story.

3. *Chapter-3: Food Sources* - Draw & Name 2 sources each for:
   a) Carbohydrate b) Proteins c) Fats d) Vitamin A e) Vitamin B1 f) Vitamin C g) Vitamin D
h) Calcium i) Iron j) Iodine

4. Write your favourite recipe with ingredients & nutritional value.

5. Paste nutritional info from 3 different food items.

6. Make poster showing difference between healthy & junk food.

SUBJECT: ENGLISH
GENERAL INSTRUCTIONS: Ensure neat presentation with creativity

Week 1: Creative Writing
1. Write a Diary entry on any 3 days of your holiday.
2. Write a notice for "Book fair" in Green Public School. You are Associate member of Literary Club.

Week 2: Grammar & Vocabulary
1. Prepare: 20 new words with meanings + use in sentences.
2. Design a Grammar Chart on Parts of Speech with examples.

Week 3: Listening & Speaking
1. Prepare speech on: "My Favourite Hobby" (1–2 min)

Week 4: Project Work
1. Topic: "My Dream School" - Include Description, Facilities, Rules & values, Drawings/illustrations.

SUBJECT: ART EDUCATION

1. 2 Paintings of Indian Artist with acrylic colour on ivory sheet.
2. 2 Still life paintings with acrylic colour on ivory sheet.
3. One craft work made from waste materials.

PM SHRI KENDRIYA VIDYALAYA BSF JALALABAD(W)

Summer Vacation Homework

Subject - English

Class - VII

To be done in class work notebook

1. Create a collage or wall hanging with different parts of speech (Noun, verb, adverb, adjectives, prepositions)any one.
2. Collect pictures of five famous Indian Scientists and write their names with their scientific experiments.
3. Draw/paste picture of 5 animals in your surroundings and write 2 lines on each.
4. How will you help an injured person in road accident (Write steps)
5. The Day the River Spoke: Summary writing and Complete all exercises.
6. Try Again (poem) : Summary writing and complete all exercises
6. Read a book of your choice and write a review including. 1. A Title 2. Main characters 3. Plot 4. Theme
7. Write a letter to your cousin on how you plan to overcome any difficult situation. Also advice not to quit and persevere.
8. Topic : 'Water' (MDP) (To be done in MDP file) - Essay on water conservation, Essay on 'Rain water harvesting.'

Subject - Science

To be done in class work notebook

Chapter-2: Learn chapter and answer the questions

1. Write summary 2. Define neutralisation reaction 3 When an ant bites, people rub baking soda on it. Why?
4 Name the following (two each)

a) Strong acid b) Natural indicator. c) Weak acid d) Base

5 Define olfactory indicator.

6. Solve Q12 from book in notebook -(P-21)

Read-Chapter-3

1.Write summary (P-37) 2.Draw the symbols of electric component (P-33)

3. Write difference between conductors and insulators with examples.

Read chapter-4

1. Write summary (P-54) 2 Define following: :-

a) Ductility b) Malleability c) Sonority (P-46) d) Corrosion e) Rusting P-50

3 Write names of 5 metal and 5 non-metal.

To be done on sheets

1. Create a beautiful pattern using natural acid, base, indicators.
2. Collect sample of 3 different type of sail and using natural indicators finds its nature.
3. Write the main ingredients of a) Toothpaste b) ENO
4. Mark 5 hydroelectric power plant on political map of India.Write brief report on any one telling about the location, establishment, electricity produced and other relevant details.
5.Create a circuits battery / cell, wire, led / bulb
6.Write a brief report on different types of cell and their applications.
7. Write a brief report on different types of metals used in mobile phones

Subject - S. S.

1- Physical Map (physical decisions of India)
2- Locate Indian states and Capitals
3- MDP- ways to conserve water
4- Mind map of the chapter: From the rulers to the ruled
5- Short note on : The Himalayas, the Gangetic plains, the desert, the island, the peninsular plateau

विषय - संस्कृत

1. अपने मनपसंद कोई 5 श्लोक अर्थ सहित लिखो।
2. बालिका के शब्द रूप लिखो।
3. बालक के शब्द रूप लिखो।
4. संस्कृत में प्रार्थना गीत लिखो व याद करो।
5. संस्कृत में छात्र प्रतिज्ञा लिखो व याद करो ।

विषय- हिंदी

1. दो दिन के अवकाश के लिए प्राचार्य को पत्र लिखो।
2. 10 मुहावरों का अर्थ लिखकर वाक्य में प्रयोग करो।
3. हिन्दी में छात्र प्रतिज्ञा लिखो व याद करो।
4. राष्ट्रगान लिखो व याद करो।
5. एक स्वरचित कविता या कहानी लिखो।
6. प्रतिदिन हिन्दी की किसी पुस्तक का एक पृष्ठ बोल-बोलकर पढ़ें।

Art education

1. 2 painting (Art work) of Indian Artist with acrylic colour on ivory sheet.
2. 2 Still life paintings with acrylic colour on ivory sheet.
3. One craft work made from waste materials.
4. 10 pencil sketch.

Maths HHW

Make a project on large numbers by using number symbols from matchsticks/ toothpicks
(Refer last page of Chapter 1)

PM SHRI KENDRIYA VIDYALAYA BSF JALALABAD

ACADEMIC ENRICHMENT MODULE: HOLIDAY HOMEWORK (2026-27)

CLASS: 8 | SUBJECT: SCIENCE | BOOK: 'CURIOSITY'

Message for Students

Dear Young Explorers, Science is not just a subject in a book; it is the 'Curiosity' to look at the world and ask 'Why?'. This summer, don't just study science—live it! Master the academic competencies through these hands-on tasks.

Section 1: Exploring the Investigative World (Chapter 1)

- TASK 1: The Germination Data Table (Academic Rigor)

Experiment: Compare 5 seeds in Sunlight (Set A) vs 5 seeds in a Dark Cupboard (Set B). Use moist cotton and measure the sprout length in cm.

Timeline	Set A: Sunlight (cm)	Set B: Dark (cm)
Day 3		
Day 7		

Conclusion: Write 3 lines on the role of sunlight in plant growth based on your data:

_____

Section 2: The Invisible Living World (Chapter 2)

- TASK 2: Academic Glossary

Define the following terms from your 'Curiosity' textbook and use them in a sentence:

Hypothesis: _____

Pasteurization: _____

Pathogen: _____

Nutritional Deficiency: _____

Section 3: Health – The Ultimate Treasure (Chapter 3)

- TASK 3: Case Study - The Local Health Mystery

Scenario: Many children in a locality are feeling tired and have pale skin. Read Chapter 3 and identify the potential deficiency and suggest 5 diet items.

Potential Deficiency: _____

Recommended Diet Items: 1._____ 2._____ 3._____ 4._____ 5._____

Submission Instructions

1. 1. This work should be compiled in a neat Science Portfolio/Folder.
2. 2. Support your data with photographs or labeled diagrams.
3. 3. Evaluation will be based on scientific precision and analytical reasoning.

ग्रीष्मावकाश गृह कार्य
कक्षा 8 विषय - हिन्दी
1. 10 मुहावरों का अर्थ लिखकर वाक्य में प्रयोग करो।
2. हिन्दी में छात्र प्रतिज्ञा लिखो व याद करो।
3. राष्ट्रगान लिखो व याद करो।
4. प्रतिदिन हिन्दी की किसी पुस्तक का एक पृष्ठ
बोल-बोलकर पढ़ें।
5. ग्रीष्मावकाश में मेरी दिनचर्या/भ्रमण पर एक
लेख लिखो।

ग्रीष्मावकाश गृह कार्य
कक्षा 8 विषय - संस्कृत

1. अपने मनपसंद कोई 5 श्लोक अर्थ सहित लिखो।
2. कवि और नदी के शब्द रूप लिखो।
3. संस्कृत में प्रार्थना गीत लिखो व याद करो।
4. संस्कृत में छात्र प्रतिज्ञा लिखो व याद करो।
4.कृ धातु के लट् लकार, लोट् लकार, लङ् लकार,
विधिलिङ् लकार और लृट् लकार के रूप लिखो

PM SHRI KENDRIYA VIDYALAYA BSF JALALABAD(W)
Summer Vacation Homework
Subject - English Class - VIII
To be done in class work notebook
1. Write message/ theme of the story in your own words. 'Wit That won Hearts'
2. Write the design of your own garden, highlighting the main features of your garden.
3. Read one paragraph daily by heart from your book to enrich your fluency & reading habit. Make a 1 minute audio from each reading & listen again to enrich your listening habits.
4. Your school is holding a cultural fiesta for collecting funds for the Kargil Jawans Family Welfare
Funds. Draft a notice for your school notice-board giving details of the programme and the donations to be
made. You are Manoj, Cultural Secretary of Tarapore Senior Secondary School Mumbai. (Word limit: 50
words)
5. Read any one book of your choice and write the book review: The review is to be written in 250-300 words keeping in mind the given aspects: About the Writer, Best qualities and strength of the main character, Summary, Analysis
6.. Write a letter to your cousin telling him/her the importance of study. Suggest some ways to improve his performance in studies.
7. Create a collage or wall hanging with different parts of speech (any one)
8. Prepare yourself to speak on 'How to Get Success' (2-3 minutes only)

PM SHRI KENDRIYA VIDYALAYA BSF JALALABAD(W)
Summer Vacation Homework
Subject - S. S. Class - VIII
1- Draw a flow chart showing the classification of natural resources based on Exhaustibility

2- Make a list of 10 things you use daily. Classify each as a natural resource or human made and if natural, mention weather it is renewable or non renewable.
3- Find out one traditional water conservation practice from any state of India. Write 5-8 lines about it and draw a simple diagram.
4- Short note on : Vijayanagar empire, Mughals sultanate and Rajput Kings.
5- Map from both the chapters.

Holiday Homework Maths

Make a project on History of numbers by explaining at least 4 different number systems

HOLIDAY HOMEWORK
Art education
1. 2 painting (Art work) of Indian Artist with acrylic colour on ivory sheet.
2. 2 Still life paintings with acrylic colour on ivory sheet.
3. One craft work made from waste materials.
4. 10 pencil sketch.

PM SHRI KENDRIYA VIDYALAYA BSF JALALABAD(W)

Summer Vacation Homework

Subject – English Class - IX

1. Depict the poem 'Bharat Our Land' from NCERT Book- in a creative manner as an artistic representation

and present it in the class.

How to do Use your imagination to convert the poem in an artistic representation i.e collage making

with pictures from magazine or newspapers to be presented in the class.The presentation should be self-

explanatory.

Where to do A4 Size sheets Parameters for Assessment Relevance to content, creativity and presentation

1. Design your own newspaper

How to do : The newspaper should have five sections

1. Facts and figures of English language 2. Creative Corner- Your classroom poetry or story

2. Quotes- By famous poets with their names 4. Entertainment. 5.Games & Puzzle- based on tenses, verbs, prepositions or conjunctions. (Any one) For

example Snakes & Ladder on prepositions.Where to do Homework notebook (A4 pages)

Parameters for Assessment Quality of content, originality and presentation

3.Read any one book of your choice and write the book review:The review is to be written in 250-300 words keeping in mind the given

aspects: About the Writer, Best qualities and strength of the main character, Summary, Analysis

4.Study the chapter 'How I Taught My Grandmother To Read' and write a similar story in 200-250 words.

5.Study the chapter 'How I Taught My Grandmother to Read' and solve the exercises given and write summary also.

6.Write a letter to your cousin telling him/her the importance of study. Suggest some ways to improve his/her

performance in studies.

7.Your school is holding a cultural fiesta for collecting funds for the Kargil Jawans Family Welfare

Funds. Draft a notice for your school notice-board giving details of the programme and the donations to be

made. You are Manoj, Cultural Secretary of Tarapore Senior Secondary School Mumbai. (Word limit: 50 words)

8.Portfolio making

Maths

1. Art integrated project using Coordinate Geometry

2. Solve practice problems from chapters Coordinate Geometry and Polynomials

SOCIAL SCIENCE

1- Describe the importance of Social Science

2- Explain guiding values of Social science

3 - Case study: Two countries follow different system, one has a P. M. Responsible to Parliament, while other has a president independent of the legislature. Compare these systems and evaluate their effectiveness.

4- Write the summary of the chapter (any one) : Elections OR Building blocks OR Shaping of the earth's surface OR early humans and beginnings of civilisation.

Physics

Set -1

Week -1

Read Chapter –" Describing motion around us" from new book and answer the following questions

1. What is the difference between

a) distance and displacement

b) uniform and non- uniform motion

c) Average speed and Average velocity.

2. Draw the x-t graph for uniform and non-uniform motion.

3. Draw the v-t graph for uniform and non-uniform motion.

4. Solve Ncert example 1,2,3,4

Week -2

1. State three equations of motion.

2. Define acceleration. Also write its formula.

3. Define uniform circular motion.

4. Solve Ncert example 5,6,7,8

Week -3

1.Solve exercise question 1,2,3,4,5,6

2. Draw a poster on objects in circular motion.

Week -4

1. 1.Solve exercise question 6,7,8,9,10

2. Design an experiment to find your speed using cycle or by foot. Make a data table between distance and time. Plot its graph and find the speed from graph

Week -5

Read Chapter – “How forces affect motion”

1. State Newton's three laws of motion.

2. Draw a poster on effects of forces.

Week -6

1. Write summary and formula list of Chapter - Describing motion around us” Week -1

Read Chapter –“ Describing motion around us” from new book and answer the following questions

1. What is the difference between

a) distance and displacement

b) uniform and non- uniform motion

c) Average speed and Average velocity.

2. Draw the x-t graph for uniform and non-uniform motion.

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1. State Newton's three laws of motion.

2. Draw a poster on effects of forces.

Week -6

1. Write summary and formula list of Chapter - Describing motion around us"

Set -2

Week -1

1. An object undergoes an acceleration of 8m/s2 starting from rest. Find the distance travelled in 1 second.

2.A ship is moving at a speed of 56km/h. One second later, it is moving at 58km/h. What is its acceleration?

3.A train starting from the rest moves with a uniform acceleration of 0.2 m/s2 for 5 minutes. Calculate the speed acquired and the distance travelled in this time

4.A cyclist moving on a circular track of radius 50m complete revolution in 4 minutes. What is his (i) average speed (ii) average velocity in one full revolution?

5. Read Chapter –" Describing motion around us" from new book.

Week -2

1.A car starts from rest and moves along the x-axis with constant acceleration 5 m/s^2 for 8 seconds. If it then continues with constant velocity, what distance will the car cover in 12 seconds since it started from the rest?

2. A motorcyclist drives from A to B with a uniform speed of 30 km/hr and returns back with a speed of 20 km h/hr. Find its average speed.

3. An object is dropped from rest at a height of 150 m and simultaneously another object is dropped from rest at a height 100 m.What is the difference in their heights after 2 s if both the objects drop with same accelerations?

5. An object starting from rest travels 20 m in first 2 s and 160 m in next 4 s. What will be the velocity after 7 s from the start ?

6. Define acceleration. Draw the v-t graph for uniform and non- uniform motion. Write three equations of motion and derive them by taking reference from book.

Week -3

1.A particle is moving in a circular path of radius r. What would be the distance and displacement after half a circle?

2. A body is thrown vertically upward with velocity u. What would be the greatest height h to which it will rise ?

3. Suppose a boy is enjoying a ride on a merry-go-round which is moving with a constant speed of 10 m/s.Name the type of motion.

4.Obtain a relation for the distance travelled by an object moving with a uniform acceleration in the interval between 4th and 5th seconds.

5.Solve Ncert examples 1-8 of Chapter – Describing motion around us.

6.Draw a poster on objects in circular motion.

Week -4

1.Solve Ncert Exercise Question 1-16.

2. Design an experiment to find your speed using cycle or by foot. Make a data table between distance and time. Plot its graph and find the speed from graph

Week -5

Read Chapter – “How forces affect motion”

1. State Newton's three laws of motion.

2. Draw a poster on effects of forces.

Week -6

1. Write summary and formula list of Chapter - Describing motion around us”

Art education

1. 2 painting (Art work) of Indian Artist with acrylic colour on ivory sheet.

2. 2 Still life paintings with acrylic colour on ivory sheet.

3. One craft work made from waste materials.

4. 10 pencil sketch.

विषय- हिन्दी

‘गंगा’ पाठ्यपुस्तक के काव्य खण्ड से “रैदास के पद” का भावार्थ लिखें व प्रश्नोत्तर याद करें।

 ‘गंगा’ पाठ्यपुस्तक के गद्य खण्ड से “दो बैलों की कथा” एवं उसके प्रश्नोत्तर याद करें।

 किसी भी एक कवि का जीवन परिचय देते हुए उसका साहित्यिक परिचय लिखें।

 “वर्तमान समय में ग्लोबल वार्मिंग स्थिति” पर एक अनुच्छेद लिखें।

 अपने छोटे भाई को जो पढ़ाई के लिए घर से दूर रहता है, उसे अपने स्वास्थ्य के बारे में सचेत करते हुए एक पत्र लिखिए।

 विद्यालय के हिन्दी पखवाड़ा कार्यक्रम पर अपने दोस्त के साथ एक संवाद लिखिए।

 एक प्रोजेक्ट फ़ाइल (पोर्टफोलियो) का निर्माण करें।

Subject: Chemistry

Chapter: Exploring Mixtures and their Separation

I. Home-Based Laboratory Activities

1. Kitchen Chromatography Challenge

Use paper chromatography to find the number of components present in different colored substances found at home, such as food colors (green/orange), colored mouth fresheners, or black sketch pen ink.

- Procedure:
    - Draw a horizontal pencil line 2 cm from the bottom of a filter paper strip.
    - Mark a small spot of the ink/color at the center of the line.
    - Dip the lower end into water (ensure the water level is below the spot).
    - Record the colors that separate as the water rises.

2. Growing Salt Crystals

Prepare a saturated solution by dissolving common salt in hot water until no more can be dissolved. Allow it to cool slowly without disturbance.

- Observation Task: Record the color, shape, and size of the crystals formed.

II. Investigative & Creative Projects

1. The "Paperfuge" Model

Build a model of a centrifuge using a cardboard disc and thick thread. Research and write a 200-word report on how this device (the 'Paperfuge') helps detect diseases like malaria in remote areas without electricity.

2. Traditional Science: Mitti ka Ittar

Research the 'Deg-Bhapka' method used in Kannauj, Uttar Pradesh. Explain the traditional distillation process used to capture the scent of the earth.

III. Numerical & Conceptual Practice

1. 1. Calculate the mass by mass percentage of a solution formed by dissolving 10 g of salt in 90 g of water.
2. 2. A 500 mL bottle of glucose infusion is labeled as 5% w/v. Calculate the mass of glucose present in the entire bottle.
3. 3. If 15 mL of orange juice concentrate is mixed with water to make 150 mL of juice, calculate the % v/v of the concentrate.
4. 4. Why does the path of a laser beam become visible in a colloid but not in a true solution? Explain the phenomenon.

Note: All observations and reports should be compiled in a decorated project file.

Summer Holiday Homework

2026-27. Class – X

All subjects

ग्रीष्मकालीन गृहकार्य

कक्षा - 10

विषय - हिन्दी

प्रश्न-1 वाक्य की परिभाषा बताते हुए रचना के आधार पर उसके भेदों की परिभाषा लिखकर प्रत्येक भेद के पांच -पांच उदाहरण लिखिए ।

प्रश्न-2 संज्ञा, सर्वनाम, विशेषण, क्रिया की परिभाषा, भेद तथा तीन- तीन उदाहरण लिखिए।

प्रश्न-3 अपने मित्र को चित्रकला प्रतियोगिता में प्रथम आने पर बधाई देते हुए एक पत्र लिखिए।

प्रश्न-4 विद्यालय के प्राचार्य को खेल सामग्री उपलब्ध कराने हेतु एक प्रार्थना पत्र लिखिए।

प्रश्न 5 सूरदास के पद, नेताजी का चश्मा, बालगोबिन भगत पाठ के प्रश्न उत्तर याद करें ।

प्रश्न 6 नेताजी सुभाष चंद्र बोस का फोटो सहित परिचय देते हुए "नेताजी का चश्मा पाठ में प्रस्तुत व्यंग्य, सामाजिक संदेश तथा देशभक्ति की भावना का वर्णन करते हुए रचनात्मक लेखन कीजिए।"।

प्रश्न 7 जल - संरक्षण पर जल विभाग की ओर से एक विज्ञापन तैयार कीजिए।

प्रश्न 8 निम्नलिखित सभी विषयों पर लगभग 120-120 शब्दों में अनुच्छेद लिखिए :

(i) साइबर सुरक्षा : जागरूकता ही समाधान
(ii) स्वस्थ जीवन-शैली
(iii) एक यादगार पारिवारिक अवकाश

नोट-सभी विद्यार्थी ग्रीष्मकालीन छुट्टियों (Summer Vacation) के गृहकार्य को हिंदी नोटबुक में ही करेंगे।

Subject – **English** Class – X

1. Questionnaire Making

How to do: Prepare 15 multiple choice questions from the chapters a) A Letter to God b) A long Walk to

Freedom (NCERT Book)

Where to do: Homework notebook, Parameters: Accuracy, Content, Authentication

2. Creation with Proverb (also prepare yourself to speak for 3-4 minutes)

How to do: Describe any one of the following proverb in your own words. You should also add pictures to

Make it creative.

'No pain No gain' (relate it to the chapter – 'A Triumph of Surgery'

'All's well that ends well' (relate it to the chapter – 'A Long Walk to Freedom -Nelson Mandela')

Where to do : Homework Notebook

3.. Read any one book of your choice and write the review (Listen the summary)

How to do The review is to be written in 250-300 words keeping in mind the given aspects:

• About the Writer, Best qualities and strength of the main character, • Summary, Analysis

Where to do Homework notebook

Parameters for Assessment Content, language and accuracy

3. Depict any one of the following poems from NCERT Book- First Flight in a creative manner as an artistic

Representation and present it in the class.

I. The Dust of Snow II. Fire and Ice III. A Tiger in the Zoo

How to do Use your imagination to convert the poem in an artistic representation i.e collage making with

Pictures from magazine or newspapers to be presented in the class. The presentation should be self-explanatory.

Where to do Homework notebook

4. Revise all the chapters that have been taught till 7th of May and do practice of tense and in writing section

Do practice of Analytical paragraph .

6. Write about the poetic devices that are used in the poems 'Dust of Snow', 'Fire and Ice', 'A Tiger in the Zoo'

7. Portfolio making

Subject – **Social Science** Class – X

1- Solve Monthly test paper.

2-Solve Worksheet.

2- Prepare a project on the topic- Consumer's Rights.

Physics

Week -1

1. Draw the ray diagrams for concave and convex mirror.

2. Solve Ncert example 1,2 and ex ques 12,13,14,15

Week -2

1.Draw the ray diagrams for concave and convex lens.

2.Solve Ncert example 3,4 and ex ques 10,11,16,17

Week -3 Read topic – Refraction

1.State two laws of refraction.Define refractive index

2.Calculate the refractive index of the medium if the speed of light in that medium is given as 2.5 x 108 m/s.

3. If the refractive index of water is 4/3, calculate the speed of light in water.

4.If the angle of incidence (i) for a light ray in air is 45° and the angle of refraction (r) in glass is 30°, find the refractive index of glass w.r.t air.

Week -4 Read Chapter – Human Eye and Colorful world.

1. Draw the labeled diagram of human eye.

2. Write the function of different parts of human eye.
3. Name three defects of vision..

4.Draw an art exhibit using mirrors or Draw the model of Eye using eco-friendly material.

Week -5

1.Draw the ray diagrams for concave and convex mirror

2.If an object of 5 cm height is placed 5 cm in front of a mirror and the image formed is 8 cm in height, what type of mirror is it? Find distance at which image is formed? Find magnification

4. An object 4 cm tall is placed on the principal axis of a concave mirror of focal length 20 cm at a distance of 30 cm from it. Find the position, nature and size of the image and magnification.

Week -6

1. Draw the ray diagrams for concave and convex lens.

2. A divergent lens has focal length of 20 cm. At what distance should an object from the lens be placed so that image is formed 10 cm away from the lens?
3. A needle 4 cm high is placed in front of a lens. Image of the needle is real, inverted and 6 cm high when the distance between the needle and its image is 20 cm. Find the focal length and also write the type of the lens. Week -1

1. Draw the ray diagrams for concave and convex mirror.

2. Solve Ncert example 1,2 and ex ques 12,13,14,15

Week -2

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3. If the refractive index of water is 4/3, calculate the speed of light in water.

4.If the angle of incidence (i) for a light ray in air is 45° and the angle of refraction (r) in glass is 30°, find the refractive index of glass w.r.t air.

5.Refractive index of water and benzene w.r.t air are 1.33 and 1.50 respectively. Calculate refractive index of benzene w.r.t water?

1. The absolute refractive index of 2 media ‘A’ and ‘B’ are 2.0 and 1.5 respectivelythe height of object is 2cm,find the position of image.

6, A spherical mirror produces an image magnification -1 on a screen placed at a distance of 30 cm from the pole of the mirror.(i) Write the type of mirror in this case. What is the focal length of the mirror?

(ii) What is the nature of the image formed?

(iv) Draw the ray diagram to show the image formation in this case.

5. Calculate the focal length of a convex lens, which produces a virtual image at a distance of 50 cm of an object placed 20 cm in front of it.

Maths

1. Revise chapter no. 1 to 4 and solve the given practice problems.
2. Complete the activities from these chapters in your practical file

Subject: **Chemistry** | Class: X

General Instructions: Work should be neat, handwritten, and presented in a folder/practical file.

PART A: CHEMICAL REACTIONS & EQUATIONS (CHAPTER 1)

1. Observation Task: Identify any two instances of 'Rancidity' or 'Corrosion' at your home. Write the chemical names of the compounds formed and suggest prevention methods.

2. Balanced Equations: Write the balanced chemical equations for the following:

Burning of Magnesium ribbon in air.

Action of water on Quick Lime (CaO).

Reaction of Iron nails with Copper Sulphate solution.

PART B: ACIDS, BASES & SALTS (CHAPTER 2)

1. Natural Indicator Project: Use Turmeric or Beetroot juice as an indicator. Test it with Soap solution, Lemon juice, and Common salt solution. Complete the table:

Substance

Initial Color

Change in Color

Nature (Acid/Base)

Soap Solution

Lemon Juice

Salt Solution

2. pH in Daily Life: Briefly explain why we use antacids during acidity and why we should brush our teeth after eating sugary food.

PART C: CREATIVE ACTIVITY (CHOOSE ANY ONE)

Prepare a chart showing the 'Chlor-Alkali Process' with its products and their uses.

Make a model/diagram of the Electrolysis of Water.

"Education is the most powerful weapon which you can use to change the world."

Wishing you a happy and productive vacation!

SUMMER VACATION 2026-27

HOLIDAYS HOMEWORK
CLASS: XII COMMERCE
SUBJECT: BUSINESS STUDIES

Chapter 1

Match the concept of management in column I with their respective definition in column II:

Column I	Column II	
A. Process	(i)	Doing the task correctly and with minimum cost.
B. Efficiency	(ii)	Finishing the giving task on time
C. Effectiveness	(iii)	The primary functions or activities that management performs to get things done.

a. (i), (ii), (iii)
c. (iii), (ii), (i)
b. (iii), (i), (ii)
d. (i), (iii), (ii)

2. Hero Ltd.' s target is to produce 10,000 shirts per month at a cost of ₹ 150 per shirt. The Production Manager was able to produce 10,000 shirts at a cost of ₹ 140 per shirt but not within the stipulated time. As a result, there was loss of revenue. In this case the Production Manager is:

a. effective but not efficient
c. Neither effective nor efficient
b. efficient but not effective
d. All of these

3. 'In an organization employees are happy and satisfied, there is no chaos and the effect of management is noticeable.' Which characteristic of management is highlighted by this statement?

a. Management is an intangible force
b. Management is a dynamic function
c. It is a continuous process
d. All of the above

4. Assertion (A): Management is a goal oriented process.

Reason (R): Different organisations have different goals. Management integrates the efforts of all members towards achieving these goals.

Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

b. Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A)

c. Assertion (A) is True but Reason (R) is False

d. Assertion (A) is False but Reason (R) is True

5. Das is the Managing Director of 'Drap Ltd.', manufacturing different varieties of cheese. He has an efficient team working under him consisting of Mohit - the Production manager, Vikram – the Marketing Manager and Diwakar – the Finance Manager. They understand and interpret the policies made by Das, ensure that their departments have adequate manpower, assign them the necessary duties and motivate them to achieve the desired objectives. Identify the level of management they are working.

a. Top Level Management
c. Operational Management
b. Middle Level Management
d. All of these

6. In which two functions of management do managers at the top level spend more time than managers at lower level of the organisations?

a. Planning and Organising

b. Planning and Controlling

c. Planning and Directing

d. Planning and Staffing

7. Assertion (A): There is restricted entry in the case of management.

Reason (R): Management consists of systematic knowledge of concepts, theories and principles.

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

b. Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A)

c. Assertion (A) is True but Reason (R) is False

d. Assertion (A) is False but Reason (R) is True

8. Management of Alpha Ltd. has installed a special recycling plant to recycle the waste instead of dumping the waste in ground. It is also providing employment opportunities to local residents. Identify the objectives of management the company is fulfilling.

a. Organizational objectives

b. Social objectives

c. Personal objectives

d. None of these

9. "Anyone can be called a manager irrespective of the educational qualification possessed." Identify the characteristic of the profession in that management does not fulfil in the statement being discussed above.

a. Ethical code of conduct

b. Professional association

c. Restricted entry

d. Service motive

10. Assertion (A): Coordination is not an exclusive function of the top management.

Reason (R): Coordination is the responsibility of all managers of top, middle and operational levels.

a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

b. Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A)

c.Assertion (A) is True but Reason (R) is False

d. Assertion (A) is False but Reason (R) is True

11. "The main objective of any organization should be to utilise human and material resources to the maximum possible, i.e., to fulfill the economic objectives of a business." Comment.

12. Why is management considered to be a multi-dimensional/multi-faceted concept?

13. Do you think management has the characteristics of a full-fledged profession?

14 Whether the following statements are true/false:

Coordination is one time function.

b.Coordination is the function of the top management.

c. Planning cannot prevent problems.

15. Arvind and Amar are managers at the same level of management in a company. Arvind says that management is an 'art' whereas Amar says that management is a 'science'. As the director of the company, explain the true nature of management to Arvind and Amar.

16. "Coordination is the essence of management." Do you agree? Give reasons.

17. Nishtha is a manager of a company selling laptops. She plans the target sale of 2000 laptops per month. She allocates necessary resources to carry out the plan. She has six salesmen working under her. She works with them guiding and motivating them to achieve the target sales. At the end of the month a comparison of actual sales with the target sales she found that actual sales exceeded the target sales.

Identify, by quoting the lines from the above paragraph, the functions of management, Nishta is performing.

Explain these functions by quoting the lines.

18. The Hockey team want to play whole heartedly. To win the game is there only objective. But their captain does not tell them timely what each one of them is to do. There is no division of work.

The captain of another hockey team divides the work properly at the right time. The work is handed over to all the members of team in accordance with each individual's skill. But the majority of the team members want to see the captain losing the game. Defeat of such a team is almost definite.

"But their captain does not ……. is to do." What is lacking as per this line?

Explain the concept discussed above why it is so necessary?

19. Sanjana is the branch manager of ABC Handicrafts Pvt. Ltd. The company's objective is to promote the sales of Indian handloom and handicraft products. It sells fabrics, furnishings, readymade and household items are made out of a traditional Indian fabrics. Sanjana decides quantities, variety, color and texture of all the above items and then allocates resources for their purchase from different suppliers. She appoints a team of designers and crafts people in the company, who developed some prints for bad covers in bright colors on silk. Although they looked very impressive, they were more expensive than they had planned to sell. Average customer could not afford to buy it. Praising their effort Sanjana suggested that they should keep the silk bed covers for special occasions like Diwali and Christmas and offer the cotton bed covers on a regular basis to keep cost under control.

Identify and state the functions of management which Sanjana performs by quoting the lines from the above para.

20. Amar Akbar and Anthony are partners in a firm engaged in the distribution of dairy products in Gujarat state. Amar is a holder of senior secondary school certificate from CBSE with business studies as one of his elective subjects. Akbar had done his post-graduation in history and Anthony in dairy farming. One day there was a serious discussion between Akbar and Anthony regarding the nature of management. Akbar argued that management was a profession whereas Anthony argued against it saying that the legal and medical professions are the only professions because they fulfill all the conditions of profession.

Amar on the basis of his knowledge of business studies explained the nature of management as a profession to Akbar and Anthony.

Explain how Amar would have satisfied both Akbar and Anthony. Q. NO

Chapter 2

1.Which is not the objective of scientific management?

a. Mental change
b.Proper selection
c.Best method of doing work
d.Reduce labor turnover

2. Science not rule of thumb means:

a.To replace old methods of doing work
b.Mutual corporation
c.Discipline
d.None of the above

3. From the set of statements given in column one and column two choose the correct pair of statements:

	Column I		Column II
A.	Order	i	Employee turnover should be minimized to maintain organizational efficiency
B.	Stability of Personnel	ii	Management should promote a team spirit of unity and harmony among employees
C.	Harmony not discord	iii	There should be a place for everything and everyone

a. A-iii, B-i, C-ii

b.A-i, B-ii, C-iii

c.A-ii, B-iii, C-i

d.A-i, B-iiii, C-ii

4. One _____ and one _____ for a group of activities having the objective is principle of unity of direction.

a. Men, Money

b. Boss, Subordinate

c. Money, Material

d. Head, Plan

5. ‘The principle of order’ is concerned with:

a. Justice and kindness

b. Gang plank

c. A place for everything and everything at its place

d. One boss and one subordinate

6. Scientific management:

a. Adopting hit and trial method

b. Eliminates rule of thumb approach

c. Both (a) and (b)

d. None (a) and (b)

7. After finishing her BBA degree course, Tanya gets a job of Assistant Manager in a retail company through the reference of her cousin Taruna who works in the same company as a senior manager. Taruna decided to guide Tanya through the experience by making her aware of the important facts about management in practice. She tells her that the principles of management does not provide any ready-made solution to all management problems rather it only guides them in taking decision.

Identify the features of principles of management mentioned in the above paragraph.

a. General guidelines

b.Universal applicability

c.Flexible

d.All of these

8. Mental revolution means:

a. Cooperation

b. Harmony

c. Integration

d. All of the above

9. Which principle is being highlighted?

a. Esprit de crops

b. Discipline

c.Order

d.Unity of command

10Assertion (A): Management principles have to be modified as per the changes in the business environment.

Reason (R): Principles of management are rigid like pure sciences principles.

a.Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

b.Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A)

c.Assertion (A) is True but Reason (R) is False

d.Assertion (A) is False but Reason (R) is True

11. Vaibhav Sharma was working as the Production Manager in Crescent Pharmaceuticals Pvt. Ltd. To get his son admitted in school, he wanted to take leave from the office, but on the same day, an important meeting with the Chief Executive Officer (CEO) of the company was scheduled to discuss about some new medicines to be manufactured. Considering the significance of the meeting, he did not take leave. The CEO appreciated his exemplary behavior as he gave priority to the organizational interest over his personal interest.

Name the principle of management being followed by Vaibhav Sharma.

Explain the principle in detail.

12. "There should be an almost equal division of work and responsibility between workers and management." Do you agree? Give reasons in support of your answer.

13. Explain, giving reasons, whether the following statements are true/false:

A. To motivate the workers 'Differential Piece Wage System' should be implemented.

B. Management principles are rigid as principles of pure science.

14. "Principles of management are mainly behavioral in nature." Do you agree? Give reasons.

15. Ritika Kapoor, the CEO of Mobilo limited firmly believes in providing fair wages to the employees, superior value to the customer, care for the environment and honest dealings with business associates. She also believes that for greater productivity, work should be divided into small tasks and each employee should be trained to perform his/her specialised job. This principle is applicable to a government office where there is a dairy/dispatch clerk whose job is to receive and send mail or documents, a data entry operator whose task is to input data on the computer, a peon and officer etc. This principle is also applicable to a limited company where there are separate departments like production, finance, marketing and research and development(R&D) etc.

A. "…believes in providing fair wages to the employees, superior value to the customer, care for the environment and honest dealings with business associates." Identify the general principle of management followed here.

a. Discipline

b. Initiative

c. Order

d. Equity

B. Identify the point of importance of management principles highlighted above.

a. Principles of management provide the manager with useful insights into real world situations.

b. Principles of management help in optimum utilization of resources.

c. Principles of management help managers in scientific/thoughtful decision making.

d. Principles of management help in fulfilling social responsibility.

C. "… For greater productivity, work should be divided into small tasks and each employee should be trained to perform his/her specialized job." Identify the principle of management highlighted here.

a. Unity of command.

b. Unity of direction.

c. Division of work.

d. Esprit de corps.

D. Identify the characteristics of principles of management highlighted in the above para.

a. General guidelines

b.Universal applicability

c.Flexible

d.Contingent

16. Define principles of management. Explain any three points highlighted the significance of principles of management.

17. What contradiction do you find in the principle of 'Unity of Command and the technique of 'Functional Foremanship' and why?

18. Fayol and Taylor both have contributed immensely to the knowledge of management, which has become a basis for further practice by managers. Taylor thought that by scientifically analyzing work it would be possible to find ‘one best way’ to do it. He is most remembered for his time and motion studies and functional foremanship. He said that the best result would come from the partnership between a trained and qualified management and a cooperative and innovative workforce. Fuel explained what amounts to a manager's work and what principles should be followed in doing this work. In the light of the above discussion, differentiate between the contribution of Taylor and Fayol.

19. Explain the technique of “Functional Foremanship and the concept of “Mental Revolution” as enunciated by Taylor.

20. Vignesh completed his MBA at a reputed Business School in Lucknow. He was impressed by the principles and techniques of scientific management developed by FW Taylor. On completing his MBA, he wanted to apply scientific management in his family's business of fast food chain of restaurants named ‘Burger Mania’.

His main goal was to reduce costs which increased output. To begin with, he wanted to develop a standard method which would be followed throughout the organisation. He investigated traditional methods through work study and unified the best practices. The standard method, i.e. the best way of doing the job was then develop taking into account all parameters right from the procurement of raw materials till the delivery of the final product to the customer. Vignesh also believed that each person should not only be scientifically selected but should also be given the required training to increase efficiency. For this, he set up a special training unit called ‘Hamburger’ in Bengaluru where the workers were given the required training to increase efficiency. At ‘Hamburger’ workers were given the required training to learn the best method. At the factory, the ingredients making up a burger word in strategically placed to reduce the time taken for excess movements. The Standard Time and other parameters were determined on the basis of work study and Vignesh rewarded the workers for meeting the standard output.

Now, ‘Burger Mania’ has standardized process, raw material, time, machinery, product and working conditions that ensured the food they send out to their customers as the same high standards of excellence and level of quality in every chain of franchisee.

A. The application of scientific management to every aspect of restaurant operations led to Burger Mania’s widespread success.

B.Quoting the lines from the above, explain the principles and techniques of scientific management used by ‘Burger Menia’.

Chapter 3

1.The increase in the demand for many Ayurvedic medicines, Health products and services in the past few months, is related to the need for building immunity and an increased awareness for health care due to the spread of Corona virus. ‖ Identify the feature of Business Environment being described above:

a. Specific and General forces
c. Relativity
b. Interrelatedness
d. None of the above

2. The court issued the order that for vehicles to be smokeless was most essential and that any one violating this order shall have to pay a heavy fine. Identify the dimension of Business environment?

(a) Economic environment
(c) Legal environment
(b) Political environment
(d) Social environment

3. Entry of new players in the market led Mr. Vivek , the general manager of Clean Purifiers Ltd. to think afresh how to deal with the pandemic situation. Identify the significance of business environment in above case.

(A) It helps in coping with rapid changes

(B) It helps the firm to identify threats and early warning signals

(C) It helps in assisting in planning and policy formulation

(D) It helps in improving the performance

4. Dino Industries is facing a lot of opposition as it pays salary to women workers as compared to men workers. Which dimension of environment is being violated by the company?

(a)Social Environment (c)Legal Environment

(b)Technological Environment (d)Political Environment

5. Two Big Banner movies were scheduled to be released on the same date, however at the last moment release of one movie had to be postponed due to opposition by a group of people because of some unethical content in the movie. The loss suffered by movie postponed, provided opportunity for the released movie to earn huge amount of revenue. Which feature of business environment is highlighted in the given case?

a. Dynamic factor c. Specific and general forces

b. Complexity d.Relativity

6. Government of India banned several Chinese apps due to face off between China and India on the Line of Actual Control, it created fear in the mind of Chinese investors. Which of the following component of business environment is responsible for the decision?

(A) Legal Environment

(B) Social Environment

(C) Technological Environment

(D) Political Environment

7. Assertion: Business environment includes both specific and general forces. However, manager should be careful for both forces but give priority or more focus to specific force.

Reason: If work force of Techvia Pvt. Ltd. Is not satisfied due to unequal distribution of remuneration, it will affect smooth functioning of the entire

industry and will not affect the functioning of Techvia Pvt. Ltd.

(a) Both Assertion and reason are true and reason is correct explanation of assertion.

(b) Assertion and reason both are true but reason is not the correct explanation of assertion.

(c) Assertion is true, reason is false.

(d) Assertion is false, reason is true.

8. “According to the Weights and Measures Act, every eatable product should explicitly bear a green dot for vegetarian contents and Red dot for non-vegetarian ingredient “ which key component of the business environment is discussed in the given case.

a. Social environment c. Legal environment

b. Political environment d. Economic environment

9. Maruti was the first company to recognise the need for small cars in an environment of rising petrol prices and large middle class population in India so they become the leader in the small car market. Which importance of business environment is highlighted here.

a. First mover advantage c. Adjust with change

b. Identify the early threat d. None of the above

10. Android mobile was the first unique application for mobile market. After few years this mobile is replaced by some other variants . Which nature of Business Environment is highlighted here.

(a) Dynamic (c) Complex

(b) Uncertain (d) Inter relatedness

11. Miss. Rosy after completing her studies from Canada

comes to India to start a new business under the banner New Bloomer Ltd. She launches a new product in gleaming for Senior Secondary School students in Commerce stream, which already has an established market in Canada but not in India. Her business starts flourishing in India. Now more Indian companies entered into the market with other subjects also.

Identify and quote the lines from above pare which highlight the significance of understanding business environment.

12.Read the passage given below and answer the following questions:

SILKY Ltd. is a company which deals in hair products. It has its branches in all the parts of the world. However, the requirements of hair products are different in different parts of the world. This is due to the change in climate and lifestyles of people in the different countries. The market in which it is dealing is known for awareness of health. The more the awareness the more is the demand for such products. Company knows that the demand for these products is unpredictable as new products keep on coming and the industry keeps on changing frequently. There is a research and development department which keeps on updating the latest changes.

1.This is due to the change in climate and lifestyles of people in the different countries." Which feature of business environment is being highlighted here?

A. Relativity
C. Uncertainty
B. Dynamic Nature
D. None of these

2.Company knows that the demand for these products is unpredictable as new products keep on coming and the industry keeps on changing frequently.

Identify the feature of business environment, which is being highlighted here?

A. Complexity
C. Interrelatedness
B. Relativity
D. Uncertainty

3. The requirements of hair products are different in different parts of the world. This is due to the change in climate and lifestyles of people in the different countries. Identify the the business environment dimension which is being highlighted here?

A.Social Environment
C.Economic Environment
B.Technological Environment
D.Legal Environment

13.The government of India announced Demonetization of ₹ 500 and ₹ 1,000 currency notes with effect from the midnight of November 8, 2016. As a result, the existing ₹ 500 and ₹ 1,000 currency notes ceased to be legal tender from that date. New currency notes of the denomination of ₹ 500 and ₹ 2,000 were issued by Reserve Bank of India after the announcement. The step resulted in a substantial increases in the awareness about and use of Point of Sale machines, e-wallets, digital cash and other modes of cashless transactions. Also, increased transparency in monetary transactions and disclosure led to a rise in government revenue in the form of tax collection.

a. Enumerate the dimensions of business environment highlighted above.

14. The Government encouraged foreign companies to invest in some sectors of retailing. The argument is:

i Customers can purchase the products of these companies as their income is rising.

ii It will increase innovations which will provide new ways of producing goods .

This will ultimately improve the quality of life. Identify and explain the Business Environment under four different dimensions quoting the Lines from the above description.

15. CREA is an award winning, innovation led carry solutions Company .When the first lockdown was announced in March,2020, to restrict the spread of the novel coronavirus, the company had its game plan ready. The firm, which designs and manufactures bags for a diverse clientele, spans across cosmetics ,fashion, travel, health and fitness and apparel, quickly pivoted its business. The moment they saw that global lockdowns are in process, they understood that it is going to be a while before the business flourishes again. They immediately acted and started manufacturing PPE kits, masks, etc. during these tough times. They spent five months making PPE kits for the healthcare heroes. Many businesses changed track during the lockdown to meet the consumer

demand .But the demand curve again undergoing a shift, post the various unlock phases, it might mean fight or flight for various MSME’s in the country.

1. Which forces have been covered by CREA in the above case?

(A) Specific Forces
(C) Both Specific and General Forces
(B) General Forces
(D) None of the above

2. Name the related feature of business environment which has influenced the business of CREA?

(A) Totality of external forces
(C) Interrelatedness
(B) Dynamic nature
(D)Uncertainty

3. The above case highlights one of the points related to the importance of business environment and its understanding which led the managers to do well even in lockdown , Identify it

(A) It helps in coping with rapid changes.

(B) It helps in improving performance.

(C) It helps the firm to identify threats and early warning

(D) It enables the firm to identify opportunities and getting the first mover advantage.

4. Identify the related dimensions of business environment which led to the sudden spur in demand for masks and PPE kits?

(A) Social dimension

(B) Technological dimension

(C) Economic dimension

(D) Legal dimension

16. Deepa and Saniya after finishing their BCOM degree decide to start their own travel agency which will book rail tickets and air tickets on commission basis. They also

thought of providing tickets within 5 minutes through the use of internet. They discussed the idea with their teacher Arbind Kumar who liked the idea and suggested them to first analyze the business environment which consist of investors, competitors and other forces like social, political, etc., that may affect their business directly or indirectly. He further told them about the technological improvements and shifts in customer preferences that were taking place and hence, they should be aware of the environmental trends and changes which may hinder their business performance. He emphasized on making plans keeping in mind the threats posed by the competitors so that they can deal with the situation effectively. This alignment of business operations with the business environment will result in better performance.

1. Identify the components of business environment highlighted in the above paragraph

(a)economic environment

(b) social environment

(c) technological environment

(d) political environment.

2. Identify the features of business environment as discussed by Arbind Kumar with Deepa and Saniya:

(a)specific and general forces

(b)inter-relatedness

(c) dynamic nature

(d) uncertainty

3. Identify the points of importance of business environment as stated by Arbind Kumar in the above situation.

(a) It enables the firm to identify opportunities and getting the first mover advantage

(b) It helps the form to identify threats and early warning signals

(c) It helps in tapping useful resources

(d) The it helps in assisting in planning and policy formulation.

4. Deepa and Saniya after finishing their BCOM decided to start their own travel agency which will book rail tickets and air tickets on commission basis

Which dimension of business environment highlighted here.

(a) Economical (c) Legal.

(b) Political (d)social

17.As per the directions issued by Supreme court, the government passed an order to ban the sale of tobacco products within the area of 200 meters of all educational institutions as :

(a) it's consumption is injurious to health.

(b) People are becoming more conscious about health and fitness.

It is indicating the government 's attitude towards this business. Identify the ' Business Environment ' under four different dimensions quoting the lines from the above paragraph.

18. 1. With the election of a new government the sensex drops by 748 points.

2. A particular channel refrains from showing the advertisement of a particular product as it is banned by the government.

3. A software is in high demand among the industrial buyers as it can connect all the branches of a company as a single integrated unit.

4. At the time of holi a large number of manufacturing firms get involved in making colours which are used in the celebration of this colourful festival.

5. It is not advisable to open a luxury car showroom in the middle of an economy where per capita income is very low.

19. Naman and Govind after finishing their graduation under vocational stream decided to start their own travel agency which will book Rail Tickets and Air Tickets on commission basis. They also thought of providing tickets within ten minutes through the use of internet. They discussed the idea with their Professor Mr. Mehta who liked the idea and suggested them to first analyze the business environment which consists of investors, competitors and other forces like social, political, etc., that may affect their business directly or indirectly. He further told them about the technological improvements and shifts in consumer preferences that were taking place and hence they should be aware of the environmental trends and changes which may hinder their business performance. He emphasized on making plans keeping in mind the threat posed by the competitors, so that they can deal with the situation effectively. This alignment of business operations with the business environment will result in better performance.

(i) Identify and state the component of business environment highlighted in the above Paragraph

(ii) State any two features of business environment as discussed by Professor Mehta with Naman and Govind.

(iii) Also state two points of importance of business environment as stated by Professor Mehta in the above situation.

20. India's craft heritage is surviving because of its customs and traditions. Craft products made by craftsmen of Rajasthan, Gujarat, Assam ,etc. are not only used in the country but are also exported to Canada,UK, Australia, Germany and other countries of the world. The volume of exports of these gives India an advantage in balance of payments and the much needed foreign exchange. The prime minister desires that the handicraft industry should be expanded by linking it with technology. Focus should be on changing the manufacturing process, ensuring durability and adopting innovations

Quoting the lines from the above paragraph , explain dimension of business environment.

SUMMER VACATION 2026-27
HOLIDAYS HOMEWORK
CLASS: XII SUBJECT: ACCOUNTANCY

1.Ishu, Vishu and Nishu are partners in a firm sharing profits and losses in the ratio of 2:3:5. Their fixed capitals were ₹1,50,000, ₹3,00,000 and ₹6,00,000 respectively. After the final accounts have been prepared it was discovered that interest on capital was credited to them @ 12% instead of 10%.

(A) Nishu's Current A/c will be Debited by ₹1,500.
(B)Nishu's Current A/c will be Credited by ₹1,500.
(C)Nishu's Capital A/c will be Credited by ₹1,500.
(D)Nishu's Capital A/c will be Debited by ₹1,500.

2.Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R)

Assertion (A): Rent paid to partner is shown in P & L Appropriation A/c. Reason (R): Rent paid to partner is a charge against the profits.

In the context of the above statements, which one of the following is correct?

(A) (A) is correct, but (R) is wrong.
(B) Both (A) and (R) are correct.
(C) (A) is wrong, but (R) is correct.
(D) Both (A) and (R) are wrong.

3.If there exist insufficient profits for appropriations, the available profit is distributed in:

(A)Profit-sharing ratio
(B)Appropriation ratio
(C)Capital ratio
(D)Equally

4. The interest on drawings to be charged from a partner on an amount of 30,000 @ 5% p.a. will be:

(A)₹15,000
(B)₹1,500
(C)₹750
(D) ₹150

5. The journal entry for transfer of profits to reserves will be:
(A)Reserves A/C ……Dr.
To Profit & Loss Appropriation A/C
(B)Reserves A/C ……Dr.
To Profit & Loss A/C
(C)Profit & Loss Appropriation A/C ……Dr.
To Reserves A/C
(D)Profit & Loss A/C ……Dr.
To Reserves A/C
6.Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R)
Assertion(A): Goodwill is raised amongst the old partners, in their old ratio and gets written off amongst the partners in their new ratio.
Reason(R): Goodwill is the fruit of partner's past efforts.
In the context of the above statements, which one of the following is correct?
(A) (A) is correct, but (R) is wrong.
(B) Both (A) and (R) are correct.
(C) (A) is wrong, but (R) is correct.
(D) Both (A) and (R) are wrong.
7. A, B, and C are partner''s sharing profits in the ratio of 5::3::2. According to the partnership agreement C is to get a minimum amount of ₹ 18,000 as his share of profits every year. .The net profit for the year ended 31st March, 2019 amounted to ₹50,000. .How much amount is contributed?
(A)₹1,250; ₹3,750
(B)₹4,000; ₹4,000
(C)₹2,000; ₹5,000
8. Seeta and Geeta are partners sharing profits and losses in the ratio 4::1. . Meeta was manager who received the salary of ₹ 4,000 p..m. . in addition to a commission of 5% % on net profits after charging such commission. . Profit for the year is ₹ 6,30,000 before charging salary. . Find the total
9. Assertion (A): Number of years purchase is multiplied in the calculation of goodwill of the firm.
Reason (R): It is the measure of firm's reputation out of its past efforts.
A.Both Assertion (A) and Reason (R) are true.
B.Both Assertion (A) and Reason (R) are false.
C.Assertion (A) is true and Reason (R) is false.
D.Assertion (A) is false and Reason (R) is true.
10.A partnership firm earned divisible profit of ₹ 5,00,000, interest on capital is to be provided to partner is ₹3,00,000, interest on loan taken from partner is ₹50,000 and profit-sharing ratio of partners is 5::3.
Sequence the following in correct way:
A.Distribute profits between partners
B.Charge interest on loan to Profit and Loss A//c
C.Calculate the net profit Transfer to Profit and Loss appropriation A//C.C.
D.Provide interest on capital

11.P and Q were partners in a firm sharing profits in 3::1 ratio. . Their respective fixed capitals were ₹10,00,000 and ₹6,00,000. . The partnership deed provided interest on capital @ 12 % % p..a. . even if it will result into a loss to the firm. . The net profit of the firm for the year ended 31st March, 2023 was ₹1,50,000..
Pass necessary journal entries in the books of the firm allowing interest on capital and division of profit//loss amongst the partners.
3
12.On 01..04..2018 Raheem and Kareem started partnership business. . Raheem contributed for ₹72,00,000 first and increased by ₹3,00,000 after seven months.. KareemKareem contributed₹ 3,00,000 first and increased it to ₹4,00,000 after five months and he withdrew out of capital₹ 2,00,000 after nine months
Calculate interest on capital on 31..03..2019 if rate of interest on capital is 12% % p..a.. 3
13. D, S and M are partners sharing profits and losses in the ratio of 3:2:1. With effect from 1st April, 2022 they agree to share profits equally. For this purpose, goodwill is to be valued at two year's purchase of the average profit of last four years which were as follows: Year ending on 31st March,2019 ₹ 50,000 (Profit) Year ending on 31st March,2020 ₹ 1,20,000 (Profit) Year ending on 31st March,2021 ₹ 1,80,000 (Profit) Year ending on 31st March,2022 ₹ 70,000 (Loss) On 1st April, 2021 a Motor Bike costing ₹ 50,000 was purchased and debited to travelling expenses account, on which depreciation is to be charged @ 20% p.a by Straight Line Method. The firm also paid an annual insurance premium of ₹ 20,000 which had already been charged to Profit and Loss Account for all the years. Calculate the amount of Goodwill. 3
14. The average net profits Expected of the firm in future are ₹ 68,000 per year and capital invested in the business by the firm is ₹ 3,50,000. The rate of interest expected from capital invested in this class of business is 12%. The remuneration of the partners is estimated to be ₹ 8,000 for the year. You are required to find out the value of goodwill on the basis of 2 years purchase of super profits. 3
15. Sanjay, Sudha and Shakti are partners in a firm sharing profits in the ratio of 3::1::1. . Their fixed capital balances are ₹4,00,000, ₹1,60,000 and ₹1,20,000 respectively. . Net profit for the year ended 31st March, 2020 distributed amongst the partners was ₹1,00,000, without taking into account the following adjustments:
(a)) Interest on capitals @ 2..5% % p..a..
(b)) Salary to Sanjay ₹18,000 p..a. . and commission to Shakti ₹12,000.
(c)) Sanjay was allowed a commission of 6% % of divisible profit after charging such commission..
Pass a rectifying journal entry in the books of the firm. . Show workings clearly. 4
16 Ajay, Binod and Chandra entered into partnership on 1st April 2019 with a capital of ₹3,00,000, ₹2,00,000 and ₹1,00,000 respectively. In addition to capital Chandra has advanced a loan of ₹1,00,000. Since they had no agreement to guide them, they faced following issues during and at the end of the year.

1. Ajay wanted interest on capital to be provided @8% pa but Binod and Chandra did not agree.
2. Chandra wanted that interest on loan be paid to him @ 10% pa but Ajay and Binod wanted to pay @ 5% pa.
3. Ajay and Binod demanded to share profits in the ratio of their capital contribution, Chandra is not in agreement with this proposal.
4. Binod, being working partner, demands a lump sum payment of ₹40,000 as remuneration for which the other two partners are not in agreement.
You are required to suggest and help them resolve these issues. 4

17 A business has earned average profits of ₹1,00,000 during the last few years and the normal rate of return in similar business is 10%. Find out the value of goodwill by (i) Capitalisation of super profit method. (ii) Super profit method, if the goodwill is valued at 3 years' purchase of super profit. The assets of the business were ₹10,00,000 and its external liabilities ₹1,80,000. 4

18. A, B and Care partners share profits and losses in the ratio of 3:2:1. Their capitals ₹1,00,000, ₹75,000 and ₹50,000 respectively. They agreed to allow interest on capital @ 10 % p.a. and agreed to charge interest on drawings @10% p.a. Their drawings for the year were ₹10,000, ₹8,000 and ₹6,000 respectively. C was very active getting a salary of ₹2,000 per month and in return, he guaranteed that firm's profit would not be less than ₹80,000 before charging or allowing interest and salary payable to C. Actual profit for the year 2011 was ₹75,000. Prepare Profit and Loss Appropriation Account and Partners Capital Account. 6

19. Aman and Chaman are partners sharing profits and losses in the ratio of 2:1. On 1st April, 2011 their capitals were Aman - ₹50,000 and Chaman - ₹40,000.
Prepare the Profit and Loss Appropriation Account and the Partners' Capital Account at the end of the year after considering the following items:
a) Interest on Capital is to be allowed @ 5% p.a.
b)Interest on partners' drawings @ 6% p.a. Drawings: Aman – ₹10,000 and Chaman – ₹8,000.
c)Aman is entitled to get a salary @ ₹500 per month.
d)10% of the divisible profit is to be transferred to Reserve.
They earned profit of ₹70,500 for the year ended 31st March, 2012.
6

20 From the following information, calculate value of goodwill of M/s Amrit and Amar :
1.At three years purchase of average profit.
2.At three years purchase of super profit.
3.On the basis of capitalization of super profit.
4.On the basis of capitalization of average profit.
Information:
a.Average capital employed- ₹10,00,000.
b.Net profit/loss of the firm for the past years 2021- ₹1,60,000; 2022- ₹1,40,000; 2023- ₹2,70,000
c.Normal Rate of Return on capital is 11%.

d.Remuneration to each partner for his service to be treated as a charge on profit ₹2,500/month
Assets excluding goodwill- ₹11,00,000. Liabilities- ₹1,00,000.
21. Ram, Mohan and Sohan were partners sharing profits in the ratio of 2 : 1 : 1. Ram withdrew Rs. 3,000 every month and Mohan withdrew Rs. 4,000 every month. Interest on drawings @ 6% p.a. was charged, whereas the partnership deed was silent about interest on drawings. **Showing your working clearly, pass the necessary adjustment entry to rectify the error.**

22. Yadu, Vidu and Radhu were partners in a firm sharing profits in the ratio of 4 : 3 : 3. Their fixed capitals on 1st April, 2018 were Rs. 9,00,000, Rs. 5,00,000 and Rs. 4,00,000 respectively. On 1st November, 2018, Yadu gave a loan of Rs. 80,000 to the firm. As per the partnership agreement :

(i) The partners were entitled to an interest on capital @ 6% p.a.

(ii) Interest on partners' drawings was to be charged @ 8% p.a.

The firm earned profits of Rs. 2,53,000 (after interest on Yadu's loan) during the year 2018 – 19.
Partners' drawings for the year amounted to Yadu : Rs. 80,000, Vidu : Rs. 70,000 and Radhu : Rs. 50,000. **Prepare Profit and Loss Appropriation Account for the year ending 31st March, 2019**

Direction Read the following hypothetical situation and answer Q. No. 23 and 24

Pia, Tia and Sia were partners in a firm trading in electrical appliances. They were sharing profits in the ratio of 5: 3 :2. Their fixed capitals on 1st April, 2022 were Rs. 6,00,000 Rs. 8,00,000 and Rs.16,00,000 respectively. After the flood in Uttarakhand, all partners decided to help the flood victims personally. For this, Pia withdrew Rs. 40,000 from the firm on 15th September, 2022. On the same date, Tia instead of withdrawing cash from the firm, took some appliances amounting to Rs. 48,000 from the firm and distributed those to the flood victims. On the other hand, Sia withdrew Rs. 4,00,000 from her capital on 1st January, 2023 and provided a mobile medical van in the flood affected area. The partnership deed provides for charging interest on drawings @ 6% per annum. Interest on capital was a allowed @ 10%

23 Interest on Sia's capital will be:
(a) Rs. 60,000 (b) Rs. 80,000 (c) Rs. 1,00,000 (d) Rs. 1,50,000

24. Interest on Tia's drawings will be:
(a) Rs. 1300 (b) Rs. 1560 (c) Rs. 2880 (d) Rs. 1440

25. The capital of the firm of Anuj and Benu is Rs. 10,00,000 and the market rate of interest is 15%. Annual salary to the partners is Rs. 60,000 each. The profit for the last three years were Rs. 3,00,000, Rs. 3,60,000 and Rs. 4,20,000. Goodwill of the firm is to be valued on the basis of two years purchase of last three years average super profits. Calculate the goodwill of the firm.
(a)Rs.1,50,000 (b) Rs.1,80,000 (c) Rs.2,00,000 (d) Rs. 1,90,000

26.

The goodwill of a firm is valued at 3 years' purchase of the average profits of last 3 years. The profits of the last three years were :

Year	Profit (Rs.)
2015 – 16 :	Rs.4,00,000 (including an abnormal gain of Rs. 50,000)
2016 – 17 :	Rs.5,00,000 (after charging an abnormal loss of Rs. 1,00,000)
2017 – 18 :	Rs.2,50,000

Calculate the amount of the goodwill.

27. Sudha, Naresh and Geeta were partners in a firm sharing profits in the ratio of 5 : 3 : 2. Their fixed capitals were Rs.6,00,000; Rs.4,00,000 and Rs.2,00,000 respectively. Besides her capital Geeta had given a loan of Rs.75,000 to the firm. Their partnership deed provided for the following :

(i) Interest on capital @ 9% p.a.

(ii) Interest on partners' drawings @ 12% p.a.

(iii) Salary to Sudha Rs.30,000 per month and to Naresh Rs.40,000 per quarter.

(iv) Interest on Geeta's loan @ 9% p.a.

During the year Sudha withdrew Rs.50,000 at the end of each quarter; Naresh withdrew Rs.50,000 in the beginning of each half year and Geeta withdrew Rs.70,000 at the end of each half year. The profit of the firm for the year ended 31-3-2019 before allowing interest on Geeta's loan was Rs.7,06,750.

Prepare Profit and Loss Appropriation Account.

28. Naveen, Qadir and Rajesh were partners doing an electronic goods business in Uttarakhand. After the accounts of partnership were drawn up and closed, it was discovered that interest on capital has been allowed to partners @ 6% p.a. for the years ending 31st March, 2017 and 2018, although there is no provision for interest on capital in the partnership deed. On the other hand, Naveen and Qadir were entitled to a salary of Rs.3,500 and Rs.4,000 per quarter respectively, which has not been taken into consideration. Their fixed capitals were Rs.4,00,000, Rs.3,60,000 and Rs.2,40,000 respectively. During the last two years they had shared the profits and losses as follows :

Year Ended Ratio 31st March, 2017 3 : 2 : 1

Year Ended Ratio 31st March, 2018 5 : 3 : 2

Pass necessary adjusting entry for the above adjustments in the books of the firm on 1st April, 2018. Show your workings clearly.

29. Find the value of the goodwill of a firm on the basis of two years' purchase of last 4 years average profits. The profits of the last 4 years were: Rs.30,000, Rs.45,000, Rs. 40,000, and Rs.43,000. The profits of first year includes theft of goods Rs.3, 000, profit of second year includes abnormal gain of Rs.3,000 while profits of fourth year includes speculative profit of Rs.2,000.

(a).Goodwill Rs.39,000 of the firm.

(b).Goodwill Rs.75,000 of the firm.

(c).Goodwill Rs.76,000 of the firm.

(d).Goodwill Rs.78,000 of the firm.

30. The profits of the firm for last 5 years were as follows:
2010- Rs. 19,000,2011- Rs. 25,000, 2012- Rs.27,000,2013- Rs.30,000, 2014- Rs.33,000. Calculate goodwill on the basis of 2 years' purchase of weighted average profits. The weights were 1,2,3,4 and 5 respectively.
(a)Goodwill Rs.38,000 of the firm.
(b) Goodwill Rs.58,000 of the firm.
(c) Goodwill Rs.48,000 of the firm.
(d) Goodwill Rs.68,000 of the firm.

31.

A, B and C were partners in a firm sharing profits and losses in the ratio of 3 : 3 : 4. On 1.4.2017 the balances in their Capital and Current Accounts were as follows :

Particulars	Capital Account	Current account
A	4,00,000 Cr.	20,000 Dr.
B	5,00,000 Cr.	10,000 Dr.
C	6,00,000 Cr.	15,000 Dr.

Their partnership deed provided for the following :

(i) Interest on Capital @ 9% p.a.

(ii) Salary to A @ Rs. 50,000 per quarter On 1.1.2016 C had given a loan of Rs. 2,00,000 to the firm at 6% per annum interest.

During the year their drawings were A Rs. 40,000, B Rs. 75,000 and C Rs. 55,000. On 1.1.2018, A introduced further capital Rs. 2,00,000.
The net profit of the firm before allowing interest on C's loan was Rs. 4,00,000.
Prepare Profit and Loss Appropriation Account of the firm for the year ending 31.3.2018 and the Current Accounts of the partners.

32. A, B and C were partners. Their fixed capitals were Rs. 60,000, Rs. 40,000 and Rs. 20,000 respectively. Their profit sharing ratio was 2 : 2 : 1. According to the partnership deed, they were entitled to interest on capital @ 5% p.a. In addition, B was also entitled to draw a salary of Rs. 1,500 per month. C was entitled to a commission of 5% on the profits after charging the interest on capital, but before charging the salary payable to B. The net profits for the year, Rs. 80,000, were distributed in the ratio of their capitals without providing for any of the above adjustments. Showing your workings clearly, **pass the necessary adjustment entry.**

HOLIDAYS HOMEWORK

Subject: Economics
Class - XII Commerce

1. Calculate sales from the following data: (Ans.5000)

Subsidies	200
Opening stock	100
Closing stock	600
Intermediate consumption	3000
Consumption of fixed capital	700
Profit	750
Net value added at factor cost	2000

2. Calculate GNP at MP: (Ans.5700)

Compensation of employees	2000
Interest	500
Rent	700
Profit	800
Employer's contribution to SSS	200
Dividend	300
Consumption of fixed capital	100
NIT	250
Net exports	70
Net factor income to abroad	150
Mixed income of self employed	1500

3. Calculate Gross value added at FC: (Ans.2800)

Sales	8000
Change in stock	100
Subsidies	200
Consumption of fixed capital	300
Intermediate consumption	5500
Rent	500

4. Calculate national income: (Ans. 7780)

Net exports	-300
Compensation of employees	6000
Rent	400
Dividend	200
Consumption of fixed capital	300
Change in stock	50
Profits	800
Net factor income to abroad	-80
NIT	600
Interest	500

5. Calculate i) Domestic income , ii) Compensation of employees:

NFYA	-20
Net exports	10
NIT	50
Rent and royalty	20
Consumption of fixed capital	10
Private final consumption expenditure	400
Corporate tax	10
Interest	30
Net domestic capital formation	50
Dividends	22
Govt. final consumption expenditure	100
Undistributed profit	5
Mixed income	23

6. Calculate gross fixed capital formation from the following data when :

Private final consumption expenditure	1000
Govt. final consumption expenditure	500
Net exports	-50
NFYA	20
Opening stock	300
Closing stock	200
GDP at MP	2500

7. Calculate NDP at FC from the following data: (Ans. 360)

Net current transfers to abroad	5
Govt. final consumption expenditure	100
NIT	80
Private final consumption expenditure	300
Consumption of fixed capital	20
Gross domestic fixed capital formation	50
Net imports	-10
Closing stock	25
Opening stock	25
Net factor income from abroad	10

8. Calculate NNP at FC: (Ans. 2050)

Social security contribution by employees	90
Wages and salaries	800
Net current transfers to abroad	-30
Rent and royalty	300
Net factor income to abroad	50
Social security contribution by employers	100
Profit	500
Interest	400
Consumption of fixed capital	200
NIT	250

9. Calculate national income from the following: (Ans. 630)

Change in stock	50
Govt. final consumption expenditure	100
Net current transfers to abroad	30
Gross domestic fixed capital formation	200
Private final consumption expenditure	500
Net imports	40
Depreciation	70
NFYA	-10
NIT	120
Net capital transfers to abroad	25

10. Calculate NNP at MP: (Ans. 730)

Closing stock	10
Consumption of fixed capital	40
Private final consumption expenditure	600
Exports	50
Opening stock	20
Govt. final consumption expenditure	100
Imports	60
Net domestic fixed capital formation	80
Net current transfers to abroad	-10
Net factor income to abroad	30

11. If the Real GDP is 400 and Nominal GDP is 450, calculate the Price Index. (Ans. 112.5)
12. If the Real GDP is 600 and PI is 125, calculate the Nominal GDP. (Ans. 750)
13. If the Nominal GDP is 600 and Price index is 120, calculate the Real GDP. (Ans. 500)

14. Calculate national income: (Ans. 1240)

Rent	200
NFY to Abroad	10
National debt interest	15
Wages and salaries	700
Current transfers from govt.	10
Undistributed profit	20
Corporate taxes	30
Interest	150

Social security contribution by employers	100
NDP accruing to govt.	250
Net current transfers to ROW	5
Dividend	50

15. Calculate NNP at MP: (Ans. 1070)

NFY to Abroad	-10
Net current transfers to abroad	5
Consumption of fixed capital	40
COE	700
Corporate tax	30
Undistributed profits	10
Interest	90
Rent	100
Dividends	20
NIT	110
Social security contribution by employees	11

16. Find Net Value Added at MP: (Ans. 14)

Fixed capital with a life span of 15 yrs.	15
Raw material	6
Sales	25
Net change in stock	-2
Taxes on production	1

17. Find GNP at MP: (Ans. 1380)

Private final consumption expenditure	800
Net current transfers to abroad	20
Net factor income to abroad	-10
Govt. final consumption expenditure	300
NIT	150
Net domestic capital formation	200
Current transfers to govt.	40
Depreciation	100
Net imports	30
Income accruing to govt.	90
National debt interest	50

18. Calculate national income: (Ans. 1030)

Corporate tax	100
Private final consumption expenditure	900
Personal income tax	120
Govt. final consumption expenditure	200
Undistributed profits	50
Change in stock	-20
Net domestic fixed capital formation	120
Net imports	10
NIT	150
NFYA	-10
Private income	1000

19. Calculate GNP at MP : (Ans. 1690)

Rent	100
Net current transfers to ROW	30
Social Security Contribution by Employers	47
Mixed Income	600
Gross Domestic Capital Formation	140
Royalty	20
Interest	110
COE	500
Net domestic capital formation	120
Net factor income from abroad	-10
NIT	150
Profit	200

20. Calculate NDP at FC: (Ans. 1000)

Net current transfers to abroad	15
Private final consumption expenditure	800
Net imports	-20
Net domestic capital formation	100
Net factor income to abroad	10

Depreciation	50
Change in stock	17
NIT	120
Government final consumption expenditure	200
Exports	30

21. Calculate NNP at MP: (Ans. 425)

Transfer payments by Govt.	7
Govt. final cons. expenditure	50
Net imports	-10
Net domestic capital formation	60
Private final cons. Exp.	300
Private income	280
Net factor income to abroad	-5
Closing stock	8
Opening stock	8
Depreciation	12
Corporate tax	60
Retained earnings of corporations	20

22. Calculate GNP at MP: (Ans. 1720)

Wages and salaries	800
Personal tax	150
Operating Surplus	200
Undistributed taxes	10
Social security contr. By employers	100
Corporate tax	50
Net factor income to abroad	-20
Personal disposable income	1200
NIT	70
Consumption of fixed capital	30
Mixed income of self employed	500
Royalty	9

23. Find Gross Value Added at Market Price: (Ans. 80)

Depreciation	20
Domestic sales	200
Net change in stock	-10
Exports	10
Single use producer goods	120

24. Find National Income: (Ans. 2040)

Wages and salaries	1000
Net current transfers to abroad	20
Net factor paid to abroad	10
Profit	400
National debt interest	120
Social security contributions by employers	100
Current transfers from govt.	60
National income accruing to govt.	150
Rent	200
Interest	300
Royalty	50

25. Calculate Value added by Firm X and Firm Y: (Ans. X= 250, Y= 60)

Sales by firm X to households	100
Sales by firm Y	500
Purchases by households from firm Y	300
Exports by firm Y	50
Change in stock of firm X	20
Change in stock of firm Y	10
Imports by firm X	70
Sales by firm Z to firm Y	250
Purchases by firm Y from firm X	200

26. Find out Value added by firm B from the following data: (Ans. 40)

Purchases by Firm B from Firm A	30
Sales by Firm B to Firm C	25
Sales by Firm B to households	35
Opening stock of Firm B	5
Opening stock of Firm C	10
Closing stock of Firm B	10
Purchases by Firm B from Firm D	15

Export by Firm B	20

27. Find Net value added at Market Price: (Ans. 19500)

Output sold (in units)	1000
Price per unit of output	30
Excise	1600
Import duty	400
Net change in stock	-500
Depreciation	2000
Intermediate cost	8000

28. Calculate National Income: (Ans. 550)

Current transfers by Govt.	15
Private final cons. Exp.	400
Net current transfers fro ROW	20
Govt. final cons. Exp.	100
Net factor income from abroad	-10
Net domestic capital formation	80
Consumption of fixed capital	50
Net exports	40
NIT	60

29. Calculate GDP at MP by a) Production method, b) Income method: (Ans. 1440)

Intermediate Consumption of: **a)** Primary sector **b)** Secondary sector **c)** Tertiary sector	 500 400 300
Value of output of: **a)** Primary sector **b)** Secondary sector **c)** Tertiary sector	 1000 900 700
Rent	10
Emoluments of employees	400
Mixed income	650
Operating surplus	300
Net factor income from abroad	-20
Interest	5
Consumption of fixed capital	40
NIT	10

30. Calculate NNP at MP by a) Expenditure method, b) Income method (Ans. 1090)

Personal consumption exp.	700
Wages and salaries	700
Employer's contr. To SSS	100
Gross business fixed investment	60
Gross residential construction	60
Gross public investment	40
Inventory investment	20
Profits	100
Govt. purchase of goods and services	200
Rent	50
Exports	40
Imports	20
Interest	40
Mixed income of self employed	100
Net factor income from abroad	-10
Depreciation	0
Indirect taxes	20
Subsidies	10

31. Calculate a) GDP at FC, b) Factor income to abroad. (Ans. 1700, 100)

COE	1000
Profits	200
Dividends	80
GNP at MP	1800
Rent	250
Interest	200
Gross domestic capital formation	300
Net fixed capital formation	200
Change in stock	50
Factor income from abroad	80
NIT	120

32. Calculate a) GDP at MP, b) Factor income from abroad. (Ans. 3250, 3300)

Profits	550
Exports	40
COE	1600
Gross national product at factor cost	3000
Net current transfers from ROW	90
Rent	300
Interest	400
Factor income to abroad	120
NIT	300
Net domestic capital formation	650
Change in stock	50
Gross fixed capital formation	700

33. GNP at MP of an imaginary economy is 120000 crore as its capital stock is worth 300000 crore. If capital stock depreciates @ 20% per annum, indirect taxes amount to 30000 crore and subsidies are put at 15000 crore. What is national income? (Ans. 45000)

34. From the following data, calculate Domestic factor income : (Ans. 24480)

GDP at MP	24600
Consumption of fixed capital	2800
NIT	120
Net factor income to abroad	-200

35. Calculate GDP at MP by Income method and Closing stock: (Ans. 820cr , 40cr.)

Particulars	In crores	Particulars	In crores
Pvt. Final cons. Exp.	450	Opening stock	10
Rent	120	Gross fixed capital formation	300
Govt. final cons. Exp	50	COE	200
Indirect taxes	60	Net exports	-10
Interest	150	Net factor income from abroad	-10
Mixed income of self employed	20	Subsidies	10
Consumption of fixed capital	30	Profit	250

36. Calculate GDP at MP and Subsidies: (Ans. 70000, 5000)

Particulars	In crores	particulars	In crores
Govt. final cons. Expenditure	7000	COE	24000
Indirect taxes	9000	Depreciation	4000
NNP at FC	61700	Pvt. Final cons. Exp.	44000
Mixed income of self employed	28000	Export of goods and services	4800
Gross fixed capital form.	13000	Import of goods and services	5600
Net addition to stock	10000	NFIA	-300

37. Calculate domestic income and compensation of employees: (Ans. 510, 400)

Particulars	In crores	Corporate taxes	10
Net factor income to abroad	20	Interest	30
Net exports	10	Net domestic capital formation	50
NIT	50	Dividends	22
Rent and royalty	20	Govt. final cons. Exp.	100
Consumption of fixed capital	10	Undistributed profits	5
Prvt. final cons. Exp.	400	Mixed income	23

38. Calculate national income and depreciation from the following data: (Ans. 930, 25)

Particulars	In crores	Particulars	In crores
NIT	5	Prvt. Final cons. Exp.	600
Net domestic fixed capital formation	100	Change in stock	10
Govt. final cons. Exp.	200	Net factor income from abroad	5
Gross domestic fixed cap. Form.	125	Net imports	-20

PM SHRI KENDRIYA VIDYALAYA BSF JALALABAD
HOLIDAY HOMEWORK

CLASS- XII Subject: Mathematics (041)

Q No	QUESTION	MARKS
	RELATIONS AND FUNCTIONS	
	SECTION-A (*This section comprises of multiple-choice questions (MCQs) of 1 mark each*)	
1	The function f : R→R defined by f(x) = x – 4 is …… (A) Bijective (B) Surjective but not Injective (C) Injective but not Surjective (D) Neither Surjective nor Injective	1
2	If $A = \{1,3,5,7\}$ and $B = \{1,2,3,4,5,6,7,8\}$, then the number of one-one functions from A into B is …… (A) 1340 (B) 1860 (C) 1430 (D) 1680	1
3	If A and B are two equivalence relations defined on set C, then (A) A ∪ B is an equivalence relation (B) A ∩ B is not an equivalence relation (C) A ∩ B is an equivalence relation(D) none of the above	1
4	$Let\ A = \{a, b, c\}$ then the number of reflexive relations on A is …… (A) 64 (B) 32 (C) 8 (D) 81	1
5	A relation R is defined on a set of human beings as $R = \{(x, y): x\ is\ 5\ cm\ shorter\ than\ y\}$ then R is…… (A) Reflexive only (B) Reflexive and Transitive (C) Symmetric and Transitive (D)Neither reflexive nor symmetric nor transitive	1
6	A function $f: R \to R\ defined\ by\ f(x) = x^2$ is _____ (A) One- one (B)Onto (C) Bijective (D) Neither one-one nor onto	1
7	**Which of the following is an example of a one-one and onto function**? (A) $f: R \to R, f(x) = x^2$ (B) $f: R \to R, f(x) = x + 1$ (C) $f: Z \to Z, f(x) = 2x$ (D) None of these	1
8	In the set Z of all integers, which of the following relation R is a symmetric relation2 (A) xRy : if x ≤ y (B) xRy : if 'x-y is an even positive integer' (C) xRy : if x = y (D) xRy : if x is a factor of y	1
9	The number of relations on the set $A = \{1, 2, 3\}$are (A) 9 (B) 2^3 (C) 3 (D) 2^9	1
	*Questions below are Assertion and Reason based questions. Two statements are given, one labelled Assertion (A) and the other labelled Reason (*R*). Select the correct answer from the codes (*A),(B),(C*) and (*D*) as given below.* A) Both Assertion (A) and Reason (R) are true and R is the correct explanation of the Assertion (A) B) Both Assertion (A) and Reason (R) are true and R is not the correct explanation of the Assertion (A) C) Assertion (A) is true, but (R) is false D) Assertion (A) is false, but (R) is true	
10	Assertion (A): The relation f : {1,2,3, 4} → {x, y, z, p} defined by f = {(1, x), (2, y), (3,z)} is a bijective function. Reason (R): The function f : {1,2,3} → {x, y, z, p} such that f = {(1, x), (2, y), (3, z)} is one-one.	1
11	Assertion(A) : The relation $R = \{(1, 2)\}$ on the set $A = \{1, 2, 3\}$ is transitive. Reasoning (R): A relation R on a non-empty set A is said to be transitive if $(a, b), (b, c) \in R \Rightarrow (a, c) \in R, for\ all\ a, b, c \in A$.	1
12	Assertion (A) : The relation R in a set $A = \{1, 2, 3, 4\}$ defined by $R = \{(x, y): 3x - y = 0)\}$ has the domain = {1, 2, 3, 4} and range = {3, 6, 9, 12} Reason (R): Domain & range of the relation (R) is respectively the set of all first & second entries of the distinct ordered pair of the relation.	1

13	Let A = {1, 2, 3, 4, 6}. If R is the relation on A defined by {(a, b): a, b ∈A, b is exactly divisible by a}. Assertion (A): The relation R in Roster form is {(6, 3), (6, 2), (4, 2)}. Reason (R): The domain and range of R is {1, 2, 3, 4, 6}.	1
14	Assertion (A) : The Relation R defined on A = {a,b,c} and given by R = {(a,a), (b,b), (c,c), (a,b), (b,a), (a,c), (c,a)} is an equivalence relation. Reason (R) : A relation R is said to be equivalence relation if it is Reflexive, Symmetric and Transitive.	1
15	Assertion (A): The relation R on the set $N \times N$ defined by $(a,b)R(c,d) \Leftrightarrow a+d=b+c$, for all $(a,b),(c,d) \in N \times N$is an equivalencerelation. Reason (R): Any relation is an equivalence relation, if it is reflexive, symmetric and transitive	1
16	Assertion (A): The function f : R→R, given by f(x) = x^3 is injective. Reason (R) :The function f : X → Y is injective, if f(x) = f(y) ⇒ x = y for all x,y ∈X	1
17	Assertion (A): The number of onto functions from a set P containing 5 elements to a set Q containing 2 elements is 30. Reason(R) : Number of onto functions from a set containing m elements to a set containing n elements is n^m.	1
18	Assertion (A): The $f: R \to R$given by f(x) = [x] is bijection. Reason (R) : A function is said to be bijection, if it is both one-one and onto.	1
19	Let W be the set of words in the English dictionary. A relation R is defined on W as R = {(x, y) ∈W x W such that x and y have at least one letter in common} Assertion (A): R is reflexive. Reason (R): R is symmetric.	1
20	Assertion (A): If R is the relation defined in set {1, 2, 3, 4, 5, 6} as R = {(a, b) :b = a + 1} , then R is reflexive Reason (R) : No integer is equal to it's successor	1
	SECTION – B *This section comprises very short answers (VSA) type questions of 2 marks each.*	
22	Show that the relation R on **R**x**R** defined as $R = \{(a,b): (a \leq b)\}$, is reflexive and transitive but not symmetric.	2
23	Let a relation R on the set N of natural numbers defined by R = { (x,y) : $3x^2 - 7xy + 4y^2 = 0$, x,y ∈ N}. Check whether R is an equivalence relation or not?	2
24	Show that the relation S on the set of real numbers defined as S = { (a,b): a≤ b^2, where a,b ∈**R**} is neither reflexive nor symmetric.	2
	SECTION-C *This section comprises Long answers (LA) type questions of 5 marks each*	
25	Let N be the set of natural numbers and R be the relation on $N \times N$ defined by $(a,b)\ R\ (c,d)$ iff $ad = bc$ for all $a,b,c,d \in N$. Show that R is an equivalence relation.	5
26	Show that the function $f: N \to N$ defined by $f(x) = x^2 + x + 1$ is one-one but not onto.	5
27	Let $f: R - \left\{-\frac{4}{3}\right\} \to R$ be a function defined as $(x) = \frac{4x}{3x+4}$. Show that f is a one one function. Also check whether f is an onto function or not.	5
28	Let A = {1, 2, 3, 4, …, 9} be the set and R be a relation on A X A defined by: (a , b) R (c , d) ⇔ a + d = b + c for all (a , b) , (c , d) ∈ N x N . Show that R is an equivalence relation on A X A. Also, find the equivalence class of (2,6).	5
29	A function f: [0, ∞) → [-5, ∞) be defined by $f(x) = 3x^2 + 9x - 5$. Prove that the function is a one-one and on-to function.	5
30	Show that $f: R^+ \to [-9, \infty]$ defined by $f(x) = 5x^2 + 6x - 9$ is bijective function.	5
31	Show that the relation R on the set Z of all integers defined by $(x,y) \in R \Rightarrow (x - y)$ *is divisible by* 3 is an equivalence relation.	5
	SECTION E	
32	Consider the mapping f : A → B is defined by $f(x) = \frac{x-1}{x-2}$ such that f is a bijection Based on the above information, solve the following questions:	

	(i) Domain of f is: (A) R - {2} (B) R (C) R - {1, 2} (D) R – {0} (ii) Range of f is: a. R (A) R (B) R – {1} (C) R - {0} (D)R - {1,2} (iii) If g : R - {2} → R - {1} is defined by g(x) = 2f(x) - 1, then g(x) in terms of x is: (A)$\frac{x+2}{x}$(B)$\frac{x+1}{x-2}$ (C)$\frac{x-2}{x}$ (D)$\frac{x}{x-2}$ (OR) The function g defined above, is: (A) one-one (B) many-one (C) into (D) None of these	1 1 2
33	Raja visited the Exhibition along with her family. The Exhibition had a huge swing, which attracted many children. Raja found that the swing traced the path of a Parabola as given by $y = x^2$. Based on the above information, answer the following questions. (i) Let $f: N \to R$ be defined by $f(x) = x^2$. Find the Range of the function f? (ii) Check the injectivity of the function $f: N \to N$ be defined by $f(x) = x^2$ (iii) Let $f: R \to R$ be defined by $f(x) = x^2$. Check if f is one-one or not. (OR) A. Let $f: R \to R$ be defined by $f(x) = x^2$. Check if f is onto or not	1 1 2
34	An organization conducted bike race under 2 different categories boys and girls. In all there were 250 participants. Among all of them finally three from category 1 and 2 from category 2 were selected for the final race. Ravi forms two sets B and G with these participants for his college projects. Let B = {b_1, b_2, b_3}, G = {g_1, g_2} where B represents for the set of boys selected and G the set of all girls who were selected for the final race. Ravi decides to explore these two sets for various types of relations and functions. On the basis of the above information, answer the following questions: (i) Ravi wishes to form all the relations possible from B to G. 4How many such relations possible? (ii) Write smallest equivalence relation on G. (iii) (a) Ravi defines a relation from B to B as R_1 = {(b_1,b_2),(b_2,b_1)}.Write the minimum ordered pairs to be added to R_1 so that it becomes (A) reflexive but not symmetric,(B) reflexive and symmetric but not transitive. OR (b) If the track of the final race (for biker b_1) follows the curve $x^2 = 4y$,(where $0 \le x \le 20\sqrt{2}$ and $0 \le y \le 200$),then state whether the track represents one-one and onto or not.justify?	1 1 2
35	The students of Class 12 of a school planned to plant saplings along straight lines, parallel to each other to one side of the playground ensuring that they had enough play area. Let us assume that they planted one of the rows of the sapling along the line y = 2x + 4 . Let L be the set of all lines which are parallel to each other in ground and R be a relation in L. Let the relations R_1 and R_2 are defined on L as follows. $R_1 = \{(L_1, L_2): L_1 \parallel L_2, Where L_1, L_2 \in L\}$ $R_2 = \{(L_1, L_2): L_1 \perp L_2, Where L_1, L_2 \in L\}$ Answer the following questions using the above information: **(i)** Verify whether R_1 satisfies reflexive, symmetric and transitive or not? **(ii)** Verify whether R_2 satisfies reflexive, symmetric and transitive or not?	2 2
36	A scout master wants to make different groups of students so that they can be given different tasks. Students started making groups with their friends, then the scout master interfere and told them to make groups as per a rule "a student will make group with roll number in such a way that the difference of roll number is divisible by 3. (i)Write a relation R in set-builder form for the rule told by the scout master. (ii) Which roll number of students will be in the group of students with roll number 2, if there are 30 students in the class? (iii)Which roll number of students will be in the group of students with roll number 3, if there are 30 students in the class?	1 1 2
37	An organization c conducted bike race under two different categories – Boys and Girls. There were 82 participants in all. Among all of them, finally two from Category 1 and three from Category 2 were selected for the final race. Ravi forms two sets B and G with these participants for his college project. Let $B = \{b_1, b_2\}$ and $G = \{g_1, g_2, g_3\}$, where B represents the set of Boys and G represents set of Girls selected for the final race.	1

	Based on the above information answer the following questions. (i) How many relations are possible from B to G? (ii) Among all possible relations from B to G, how many functions can be formed from B to G? (iii) Let $R: B \to B$ *be defined by* $R = \{(x, y)/x$ *and* y *are students of same sex* $\}$. Check whether R is equivalence relation or not. **OR** Let $f: G \to B$ *be defined by* $f = \{(g_1, b_1), (g_2, b_2), (g_3, b_1)\}$. Check whether f is bijective or not. Justify your answer.	1 1 2
38	A school is organizing a debate competition with participants as speakers $S = \{S_1, S_2, S_3, S_4\}$ and these are judged by judges J=$J_1, J_2, J_3\}$. Each speaker can be assigned one judge. Let R be a relation from set S to J defined as $R = \{(x, y): speaker\ x\ is\ judged\ by\ judge\ y, x \in S, y \in J\}$. Based on the above, answer the following : (i) How many relations are possible from S to J? (ii) A student identifies a function from S to J as $f = \{(S_1, J_1), \{(S_2, J_2), \{(S_3, J_2), \{(S_4, J_3)\}$. Check if it is bijective (iii) How many one-one functions can be there from set S to set J? **OR** Another student considers a relation $R_1 = \{(S_1, S_2), (S_2, S_4)\}$ in set S. Write minimum ordered pairs tom be included in R_1 so that R_1 is reflexive but not symmetric.	1 1 2
39	An organization conducted bike race under 2 different categories-boys and girls. In all, there were 250 participants. Among all of them finally three from Category 1 and two from Category 2 were selected for the final race. Ravi forms two sets B and G with these participants for his college project. Let B = $\{b_1, b_2, b_3\}$, G = $\{g_1, g_2\}$ where B represents the set of boys selected and G the set of girls who were selected for the final race. Ravi decides to explore these sets for various types of relations and functions. On the basis of the above information, answer the following questions: (i) Ravi wishes to form all the relations possible from B to G. How many such relations are possible? (ii) Write the smallest equivalence relation on G. iii) (a) Ravi defines a relation from B to B as R1 = $\{(b_1, b_2), (b_2, b_1)\}$. Write the minimum ordered pairs to be added in R1 so that it becomes (A) reflexive but not symmetric, (B) reflexive and symmetric but not transitive. **OR** (iii) (b) If the track of the final race (for the biker b_1) follows the curve $x^2 = 4y$; (where $0 \le x \le 20\sqrt{2}$ & $0 \le y < 200$), then state whether the track represents a one-one and onto function or not. (Justify).	 1 1 2
40	Sherlin and Dhanju are playing Ludo at home during Covid-19. While rolling the dice, Sherlin's sister Raji observed and noted the possible outcomes of the throw every time belongs to set {1 ,2, 3, 4, 5, 6}. Let A be the set of players while B be the set of all possible outcomes. A = {S,}, B = {1 ,2, 3, 4, 5, 6}. Answer the following questions based on the given information: (i) Raji wants to know the number of relations possible from A to B. Find the number of all possible relations. (ii) Raji wants to know the number of functions from A to B. Find the number of all possible functions. **(iii)** Let R be a relation on B defined by R = { (1,2), (2, 2), (1, 3), (3, 4), (3, 1), (4, 3), (5, 5)}. Verify R is symmetric and transitive? **(OR)** Let R: $B \to B$ be defined by R = $\{(x, y)$: $yisdivisiblebyx\}$. Verify that whether R is symmetric and transitive.	 1 1 2
41	An organization conducted bike race under two different categories – Boys and Girls. There were 28 participants in all. Among all of them, finally three from category 1 and two from category 2 were selected for the final race. Ravi forms two sets B and G with these participants for his college project. Let B = $\{b_1, b_2, b_3\}$ and G = $\{g_1, g_2\}$, where B represents the set of boys selected and g the set of girls selected for the final race. Based on the above information, answer the following questions.	 1 1

	(i) How many relations are possible from B to G (ii) Among all the possible relations from B to G, how many functions can be formed from B to G? (iii) Let $R: B \to B$ be defined by $R = \{(x, y): x \text{ and } y \text{ are students of the same sex}\}$. Check if R is an equivalence relation. (OR) A function $f: B \to G$ be defined by $f = \{(b_1, g_1), (b_2, g_2), (b_3, g_1)\}$. Check if f is bijective. Justify your answer	2
42	In class 6, the teacher conducted a survey on the fruits and vegetables the students like most.The class leader is asked to record the data . from the the data it was found that the top most 3 fruits liked by most of them are Apple, Orange, Mango whereas the 3 vegetables most of them like are Tomatoes, Carrot, Cucumber.The teacher put it in 2 sets F={Apple, Orange, Mango } and V = { Tomatoes, Carrot, Cucumber} (i) How many relations are possible from F to V? (ii) How many functions are possible from F to V? (iii) How many one to one functions are possible from F to V? OR How many bijections are possible from F to V?	1 1 2
43	An organisation conducted bike race under 2 different categories boys and girls. In all there were 250 participants. Among all of them finally three from category 1 and 2 from category 2 were selected for the final race. Ravi forms two sets B and G with these participants for his college projects. Let B = $\{b_1, b_2, b_3\}$, G = $\{g_1, g_2\}$ where B represents for the set of boys selected and G the set of all girls who were selected for the final race. Ravi decides to explore these two sets for various types of relations and functions. On the basis of the above information, answer the following questions: (i) Ravi wishes to form all the relations possible from B to G. How many such relations possible? (ii) Write smallest equivalence relation on G. (iii) (a) Ravi defines a relation from B to B as $R_1 = \{(b_1,b_2),(b_2,b_1)\}$.Write the minimum ordered pairs to be added to R_1 so that it becomes (A) reflexive but not symmetric,(B) reflexive and symmetric. **OR** (b) If the track of the final race (for biker b_1) follows the curve $x^2 = 4y$,(where $0 \le x \le 20\sqrt{2}$ and $0 \le y \le 200$),then state whether the track represents one-one and onto or not. Justify?	1 1 2
44	Students of Grade 12, planned to plant saplings along straight lines, parallel to each other to one side of the playground ensuring that they had enough play area. Let us assume that they planted one of the rows of the saplings along the line $y = x - 4$. Let L be the set of all lines which are parallel on the ground and R be a relation on L. Answer the following using the above information. (i). Let relation R be defined by R = $\{(L_1, L_2): L_1 \parallel L_2$ where $L_1, L_2 \in L\}$ then R is_____ relation. (ii). Let R = $\{(L_1, L_2) : L_1 \perp L_2$ where $L_1, L_2 \in L\}$ which of the following is true? (A) R is Symmetric but neither reflexive nor transitive (B) R is Reflexive and transitive but not symmetric (C) R is Reflexive but neither symmetric nor transitive (D) R is an Equivalence relation (iii). The function f: R→R defined by $f(x) = x - 4$ is_____ (A). Bijective (B). Surjective but not injective (C) . Injective but not Surjective (D). Neither Surjective nor Injective (OR) (iii). Let $f: R \to R$ be defined by $(x) = x - 4$. Then the range of $f(x)$ is _____	
	INVERSE TRIGONOMETRIC FUNCTIONS	
	SECTION-A (*This section comprises of multiple-choice questions (MCQs) of 1 mark each*)	
1	The domain of the function defined by $f(x) = \sin^{-1} x + \cos x$ is (A) [–1, 1] (B) $[-1, \pi + 1]$ (C) $(-\infty, \infty)$ (D) ϕ	1
2	The value of $\cos^{-1}(-1) - \sin^{-1}(1)$ is (A) π (B) $\frac{\pi}{2}$ (C) $\frac{3\pi}{2}$ (D) $-\frac{3\pi}{2}$	1

3	The value of $\tan^{-1}\left[2\sin\left(2\cos^{-1}\frac{\sqrt{3}}{2}\right)\right]$ is (a) $\frac{\pi}{3}$ (b) $\frac{2\pi}{3}$ (c) $-\frac{\pi}{3}$ (d) $\frac{\pi}{6}$	1
4	The value of $\sin\left(\frac{\pi}{3}-\sin^{-1}\left(-\frac{1}{2}\right)\right)$ is (A) $\frac{1}{2}$ (B) $\frac{1}{3}$ (C) $\frac{1}{4}$ (D) 1	1
	Questions below are Assertion and Reason based questions. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer from the codes (A),(B),(C) and (D) as given below. A) Both Assertion (A) and Reason (R) are true and R is the correct explanation of the Assertion (A) B) Both Assertion (A) and Reason (R) are true and R is not the correct explanation of the Assertion (A) C) Assertion (A) is true, but (R) is false D) Assertion (A) is false, but (R) is true	
5	Assertion (A) : The range of the function f(x) = $2\sin^{-1}x + \frac{3\pi}{2}$, where x∈ [-1,1], is $[\frac{\pi}{2}, \frac{5\pi}{2}]$ Reason (R) : The range of the principal value branch of $\sin^{-1}x$ is $[0,\pi]$.	1
6	Assertion (A) : The Principal value of the function f(x) = $\sin^{-1}(\sin\frac{2\pi}{3}) + \cos^{-1}(\cos\frac{2\pi}{3})$,where x∈ [-1, 1] is π Reason (R): The range of the principal value branch of $\cos^{-1}x$ is $[0, \pi]$ and $\sin^{-1}x$ is $[-\frac{\pi}{2},\frac{\pi}{2}]$	1

	SECTION – B *This section comprises very short answers (VSA) type questions of 2 marks each.*	
7	Find the principal value of $\left(\cos^{-1}\cos\frac{13\pi}{6}\right)$.	2
8	Find the value of $\tan^{-1}(\sqrt{3}) - \sec^{-1}(-2)$	2
9	Find the value of $\left[\sin^{-1}\sin\left(\frac{13\pi}{7}\right)\right]$	2
10	Simplify :$\tan^{-1}1 + \cos^{-1}(-\frac{1}{2}) + \sin^{-1}(-\frac{1}{2})$	2
11	Find the principal value of $\cos^{-1}(1/2) - 2\sin^{-1}(-1/2)$.	2
12	If $\cos(\tan^{-1}x) = \sin\left(\cot^{-1}\left(\frac{3}{4}\right)\right)$, then find the value of x.	2
13	Simplify: $\tan^{-1}\left[2\cos\left\{2\sin^{-1}\left(\frac{1}{2}\right)\right\}\right]$	2
14	Solve for $x, \cos^{-1}x + \sin^{-1}\left(\frac{x}{2}\right) = \frac{\pi}{6}$.	3

MATRICES

	SECTION-A (*This section comprises of multiple-choice questions (MCQs) of 1 mark each*)	
1	If the matrix A is both symmetric and skew symmetric, then (A) A is a diagonal matrix (B) A is a zero matrix (C) A is a square matrix (D) None of these	1
2	Matrices A and B will be inverse of each other only if (A) AB = BA (B) AB = BA = 0 C) AB = 0, BA = I (D) AB = BA = I	1
3	If $A = [a_{ij}]$ is an identity matrix, then which of the following is true? A. $a_{ij} = \{0, if\ i = j 1, if\ i \neq j$ $B. a_{ij} = 1, \forall i, j$ $C. a_{ij} = 0, \forall i, j$ $D. a_{ij} = \{0, if\ i \neq j 1, if\ i = j$	1
4	For any square matrix A, $(A - A^T)^T$ is always : A. An identity matrix B. A null matrix C.A skew symmetric matrix D.A symmetric matrix	1
5	If $P = \begin{bmatrix}1 & 2 & 1\\ 1 & 3 & 1\end{bmatrix}$ and $Q = PP^T$, then the value of $\|Q\|$ is (a) 2 (b) -2 (c) 1 (d) 0	1
6	If A= $\begin{bmatrix}cos\theta & -sin\theta\\ sin\theta & cos\theta\end{bmatrix}$ such that A+A^T= I then find the value of θ a) $\frac{2}{\pi}$ b) $\frac{\pi}{3}$ c) $-\frac{2}{\pi}$ d) $-\frac{\pi}{3}$	1

7	If $\begin{bmatrix} x & 2 \\ 3 & x-1 \end{bmatrix}$ is a singular matrix, then the product of all possible values of x is: a) 6 b)0 c) -6 d) 7	1
8	If a matrix has 24 elements, the number of possible orders it can have, is A) 13 B) 3 C) 5 D) 8	1
9	If $\begin{bmatrix} x+y & 2 \\ 5 & xy \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$, then the value of $(\frac{24}{x} + \frac{24}{y})$ is A) 7 B) 6 C) 8 D) 18	1
10	If A = $\begin{bmatrix} 3 & 4 \\ 5 & 2 \end{bmatrix}$ and 2A +B is null matrix, then B is equals to A) $\begin{bmatrix} 6 & 8 \\ 10 & 4 \end{bmatrix}$ B) $\begin{bmatrix} -6 & -8 \\ -10 & -4 \end{bmatrix}$ C) $\begin{bmatrix} 5 & 8 \\ 10 & 3 \end{bmatrix}$ D) $\begin{bmatrix} -5 & -8 \\ -10 & -3 \end{bmatrix}$	1
11	If $A = \begin{bmatrix} \sin\alpha & \cos\alpha \\ -\cos\alpha & \sin\alpha \end{bmatrix}$ then the value of the product AA^T is a) Null matrix b) I c) A^2 d) A	1
12	Let $A = \begin{bmatrix} 0 & 0 & -1 \\ 0 & -1 & 0 \\ -1 & 0 & 0 \end{bmatrix}$, then the only correct statement about the matrix A is a) A^{-1} does not exist. b) $A^2 = I$ c) A is a zero matrix d) A = (-1) I , where I is identity matrix	1
13	If $A = \begin{bmatrix} 2 & 0 & -3 \\ 4 & 3 & 1 \\ -5 & 7 & 2 \end{bmatrix}$ is expressed as the sum of a symmetric and skew symmetric matrix, then the symmetric matrix is a) $A = \begin{bmatrix} 2 & 2 & -4 \\ 2 & 3 & 4 \\ -4 & 4 & 2 \end{bmatrix}$ b) $A = \begin{bmatrix} 2 & 4 & -5 \\ 0 & 3 & 7 \\ -3 & 1 & 2 \end{bmatrix}$ c) $A = \begin{bmatrix} 4 & 2 & -4 \\ 2 & 6 & 4 \\ -4 & 4 & 4 \end{bmatrix}$ d) $A = \begin{bmatrix} 4 & 4 & -8 \\ 4 & 6 & 8 \\ -8 & 8 & 4 \end{bmatrix}$	1
14	If A and B are two symmetric matrices of same order. Then, the matrix $AB - BA$ is equal to (a) a symmetric matrix (b) a skew-symmetric matrix (c) a null matrix (d) the identity matrix	1
15	If A is a square matrix such that $A^2 = A$, then $(I + A)^3 - 7A$ is equal to a) A b) I – A c) I d) 3A	1
16	If $A = \begin{bmatrix} 2 & x-3 & x-2 \\ 3 & -2 & -1 \\ 4 & -1 & -5 \end{bmatrix}$ is a symmetric matrix then x is a) 3 (b) 6 (c) 8 (d) 0	1
17	If $\begin{bmatrix} 2x+5 & 3 \\ 5x+2 & 9 \end{bmatrix}$ is singular matrix then $x =$ a)13 b) 9 c) -9 d) -13	1
18	If $A = (a_{ij})$ is a square matrix of order 2 such that $a_{ij} = \begin{cases} 1, when\ i \neq j \\ 0, when\ i = j \end{cases}$, then A is: (A) $\begin{pmatrix} 1 & 0 \\ 1 & 0 \end{pmatrix}$ (B) $\begin{pmatrix} 1 & 1 \\ 0 & 0 \end{pmatrix}$ (C) $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ (D) $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$	1
19	Number of symmetric matrices of order 3x3 with each entry 1or-1 is (A) 256 (B) 64 (C) 512 (D) 4	1
20	If $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$, then A^2 is equal to (a) $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ (b) $\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$ (c) $\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$ (d $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	1
	Questions below are Assertion and Reason based questions. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer from the codes (A),(B),(C) and (D) as given below. A) Both Assertion (A) and Reason (R) are true and R is the correct explanation of the Assertion (A) B) Both Assertion (A) and Reason (R) are true and R is not the correct explanation of the Assertion (A) C) Assertion (A) is true, but (R) is false D) Assertion (A) is false, but (R) is true	
21	Assertion: If $A = \begin{bmatrix} \sqrt{3} & 1 \\ 2 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} x & y & z \\ a & b & c \end{bmatrix}$, then orders of $(A + B)$ is 2×3 Reason: If $[a_{ij}]$ and $[b_{ij}]$ are two matrices of the same order, then the order of $A + B$ is the same as the order of A or B	1

	SECTION – B *This section comprises very short answers (VSA) type questions of 2 marks each.*	
22	$If\ A = \begin{pmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{pmatrix}$,then find a matrix X such that A^2-5A+4I+X=0	2
23	. If $\begin{bmatrix} 2x & 5 \\ 8 & x \end{bmatrix} = \begin{bmatrix} 6 & -2 \\ 7 & 3 \end{bmatrix}$, then write the value of x.	2
24	Given $A = \begin{bmatrix} 2 & -3 \\ -4 & 7 \end{bmatrix}$, compute A^{-1} and show that $2A^{-1} = 9I - A$.	2
25	If $A = \begin{bmatrix} 2 & 3 \\ 5 & -2 \end{bmatrix}$be such that $A^{-1} = kA$, then find the value of k.	2
	SECTION-C *This section comprises Long answers (LA) type questions of 5 marks each*	
26	If A = $\begin{bmatrix} 1 & -1 \\ 2 & -1 \end{bmatrix}, B = \begin{bmatrix} a & 1 \\ b & -1 \end{bmatrix}$ $and\ (A+B)^2 = A^2 + B^2$ then find the values of a and b	5
	DETERMINANTS	
	SECTION-A (*This section comprises of multiple-choice questions (MCQs) of 1 mark each*)	
1	If $A = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 5 \end{bmatrix}$, then A^{-1} is: A. $\begin{bmatrix} \frac{1}{2} & 0 & 0 \\ 0 & \frac{1}{3} & 0 \\ 0 & 0 & \frac{1}{5} \end{bmatrix}$ B. $30\begin{bmatrix} \frac{1}{2} & 0 & 0 \\ 0 & \frac{1}{3} & 0 \\ 0 & 0 & \frac{1}{5} \end{bmatrix}$ $C.\ \frac{1}{30}\begin{bmatrix} 2 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 5 \end{bmatrix}$ D. $\frac{1}{30}\begin{bmatrix} \frac{1}{2} & 0 & 0 \\ 0 & \frac{1}{3} & 0 \\ 0 & 0 & \frac{1}{5} \end{bmatrix}$	1
2	If $A.(adj\ A) = \begin{bmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$, then the value of $\lvert A\rvert + \lvert adj\ A\rvert$ is equal to : A. 12 B. 9 C. 3 D.27	1
3	Let A be the area of a triangle having vertices$(x_1, y_1), (x_2, y_2)\ and\ (x_3, y_3)$. Which of the following is correct? A. $\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} = \pm A$ B. $\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} = \pm 2A$ $C.\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} =$ $\pm\frac{A}{2}$ D. $\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}^2 = A^2$	1
4	If $A = \begin{bmatrix} \frac{1}{3} & 0 \\ 1 & \frac{1}{3} \end{bmatrix}$, then det ($A^T$)= a).det A (b). $-$det A (c) 0 (d) None of these	1
5	Let A be 3x3 square matrix such that $\lvert adjA\rvert$ = 64. Then $\lvert A\rvert$ is equals to A) 8 only B) -8 only C) 64 D) 8 or -8	1
6	If A is square matrix of order 3x3 and $\lvert A\rvert$ = 4 then the value of $\lvert 2A\rvert$ is A) 12 B) 15 C) 32 D) 16	1
7	If A is a square matrix of order 3 and $\lvert A\rvert = 6$, then value of $\lvert adjA\rvert$ is a)6 b) 36 c) 27 d) 216	1
8	If A and B are invertible matrices of order 3,	A	=2 and	$(AB)^{-1}$	= 6. Find |B| a) 3 b) $\frac{1}{3}$ c) 12 d) $\frac{1}{12}$	1
9	Find x, if $\begin{vmatrix} 2 & 4 \\ 5 & 1 \end{vmatrix} = \begin{vmatrix} 2x & 4 \\ 6 & x \end{vmatrix}$ a) 1 b) ±2 c) ±√3 d) ±√2	1
10	If the points (x_1, y_1), (x_2, y_2) and (x_1+x_2, y_1+y_2) are collinear, then x_1y_2 is equal to (a) x_2y_1 (b) x_1y_1 (c) x_2y_2 (d) x_1x_2	1

11	A is 3 ×3 matrix such that A (adj A) = 10I then $\lvert adj\ A\rvert$ a) 1 b) 10 c) 100 d) 1000	1
12	IIf A and B are square matrices of order 3 such that $\lvert A\rvert = -1$ and $\lvert B\rvert = 3$, then the value of the determinant of 3AB is a) − 9 b) −27 c) −81 d) 81	1
13	For what value of x, the matrix $\begin{pmatrix} 3-x & 2 \\ x+1 & 3 \end{pmatrix}$ is singular? (A) 2 (B) $\frac{7}{2}$ (C) $\frac{7}{5}$ (D) $\frac{9}{5}$	1
14	A matrix A of order 3 x 3 has determinant 8. What is the value of |4A| (A) 613 (B) 421 (C) 512 (D) 291	1
15	The co-factor of a_{32} in the determinant $\begin{vmatrix} 2 & 0 & 1 \\ 5 & 3 & 8 \\ 3 & 2 & 1 \end{vmatrix}$ is: (A) 11 (B) -11 (C) 12 (D) 10	1
	Questions below are Assertion and Reason based questions. Two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer from the codes (A),(B),(C) and (D) as given below. A) Both Assertion (A) and Reason (R) are true and R is the correct explanation of the Assertion (A) B) Both Assertion (A) and Reason (R) are true and R is not the correct explanation of the Assertion (A) C) Assertion (A) is true, but (R) is false D) Assertion (A) is false, but (R) is true	
16	**Assertion** : If A is a matrix of order 2 × 2, then $\lvert adj A\rvert = \lvert A\rvert$ **Reason** : $\lvert A\rvert = \lvert A^T\rvert$ (a) Assertion is true, reason is true, reason is a correct explanation for assertion. (b) Assertion is true,reason is true, reason is not a correct explanation for assertion. (c) Assertion is true, reason is false. (d) Assertion is false, reason is true.	1
	SECTION – B	
17	If $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 1 & 3 \\ 1 & -2 & 1 \end{bmatrix}$ then find A^{-1} and hence solve the system of system of linear equations: $x + y + z = 6, \quad y + 3z = 7\ and\ x - 2y + z = 0.$	5
18	Solve the system of equations $\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4$; $\frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1$; $\frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2$	5
19	Solve the following system of equations by matrix method: $x + 2y + 3z = 6$, $2x - y + z = 2$, $3x + 2y - 2z = 3$	5
20	If A = $\begin{bmatrix} 1 & -2 & 0 \\ 2 & -1 & -1 \\ 0 & -2 & 1 \end{bmatrix}$,find A^{-1} and use it to solve the system of following equations: x-2y = 10, 2x-y-z = 8, -2y+z = 7	5
21	If A = $\begin{bmatrix} -1 & a & 2 \\ 1 & 2 & x \\ 3 & 1 & 1 \end{bmatrix}$ and A^{-1} = = $\begin{bmatrix} 1 & -1 & 1 \\ -8 & 7 & -5 \\ b & y & 3 \end{bmatrix}$, find the value of (a+x) – (b+y).	5
22	Two farmers cultivate wheat and rice. Their production is given by the equations: 2x + 4y = 20, and 3x + 5y = 29 where x and y denote the number of fields of the first and second farmer respectively. Based on the above information answer the following: (i) Write the above system of equations in the form AX = B, clearly specifying A , X , and B . Also find |A| (ii) Solve for x and y using determinants.	5
23	Find the adjoint of the matrix $A = \begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$ and hence show that A(adj A) = $\lvert A\rvert I_3$	5
24	If A = $\begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$, then find A^{-1}.Hence solve the following system of equations: $2x - 3y + 5z = 11$, $3x + 2y - 4z = -5, x + y - 2z = -3$	5
25	If $A = \begin{bmatrix} 1 & 3 & 2 \\ 2 & 0 & -1 \\ 1 & 2 & 3 \end{bmatrix}$, then show that $A^3 - 4A^2 - 3A + 11I = O$. Hence find A^{-1}	5
26	If $A = \begin{pmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{pmatrix}$, find A^{-1}. Hence solve the given equations $2x - 3y + 5z = 11;\ 3x + 2y - 4z = -5;\ x + y - 2z = -3.$	5

27	Find the product AB, where A $= \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$,B $= \begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}$ and use it to solve the equations: $x - y = 3, 2x + 3y + 4z = 17, y + 2z = 7.$	5

Holiday Homework
Project File
On the given topics

Class 12* Writing section

1• Notice Writing
2. Formal / Inormal Invitation and Reply
3. Formal Letters
4. Article / Repont Writing