



## **THE S D VIDYA SCHOOL, NOIDA**

### **SUMMER HOLIDAY HOMEWORK (2024-25)**

#### **CLASS – IX**

Dear students,

**“Self-belief and hard work will always earn you success.”**

Holidays provide a much-needed respite from the daily routine and academic pressure. It allows you to unwind, spend quality time with family and friends, and engage in activities you love. Balancing holidays and studies is a crucial aspect of a student's life. While they are meant for relaxation and enjoyment, it is equally important to maintain a certain level of focus on studies during these breaks. By setting realistic goals and creating a conducive study environment, you can effectively utilize holidays to consolidate knowledge, enhance skills, and stay academically on track. Moreover, incorporating breaks and leisure activities into your study routine can help to maintain focus, reduce stress, and make study sessions more productive. Ultimately, by finding the right balance between holidays and studies you can enjoy the break while also making progress in your academic journey.

#### **KEEP IN MIND TO:**

- Pray to the Almighty daily and thank Him for the blissful life that you enjoy.
- Give prime importance to your health.
- Set and maintain a routine at home. Be a good time manager.
- Practice positive thinking and be grateful for what we have.
- Relax, listen to music, or read books.
- Be a helping hand to your parents and learn the skill of shared responsibility.

#### **MOST IMPORTANT:**

- Make sure that all the syllabus done by May is revised thoroughly.
- Complete the assignments.

#### **REMEMBER:**

**“THE FUTURE BELONGS TO THE COMPETENT. GET GOOD, GET BETTER, BE THE BEST!”**

**Wishing all the students a joyful learning and happy holidays.**

## **ENGLISH**

### **A. PROJECT: THE BOOKLET**

A beautiful booklet (a small thin book, usually with a soft cover, that gives information about something) is to be created of 5 to 10 pages with a catchy book cover, a book review and vocabulary.

Follow the steps given below to complete the project-

Step 1-Read a book of your choice from the following literary genres and remember to mark the difficult words (minimum 20 words- maximum 25 words) you come across-

- Fantasy
- Science fiction
- Mystery
- Non fiction
- Biography
- Thriller
- Fable
- Historical
- Legend
- Mythology
- Narrative
- Folklore

Step 2-Design a book cover for your booklet in accordance with the contents (the book review and vocabulary) of your booklet.

Step 3-Write the review of the book you read (with the heading-BOOK REVIEW along with the name of the book) inside the booklet (either on A4 size pages or pages smaller than A4).

Step 4-After the completion of the book review, find meanings of the marked words (as directed to you in step 1). Also find out the part of speech each word belongs to and make one sentence of your own with every word.

Step 5-Now, beautifully write down the words, their meanings, the part of speech they belong to along with their usage in sentences in further pages of your booklet under the heading-MY MINI DICTIONARY.

Step 6-Feel free to sprinkle your creativity and curate a captivating booklet. You may draw/paste pictures too and make use of coloured sheets. Do not forget to mention your name, class and roll number on the last page of the booklet.

**HAPPY READING!!!**

**B. GRAMMAR ASSIGNMENT: Do the attached English Assignment**

## INTEGRATED GRAMMAR

### Q1. Gap Filling:

**Fill in the blanks with appropriate meaningful words.**

1. Thousands of species of plants and (a) \_\_\_\_\_ are fast disappearing from the face of our (b) \_\_\_\_\_ and no one else but (c) \_\_\_\_\_ is responsible for this. (d) \_\_\_\_\_ of trees in the hilly region (e) \_\_\_\_\_ the lives of people living there.

2. Last month an (a) \_\_\_\_\_ was organized by our school and we (b) \_\_\_\_\_ (take) to Botanical Gardens. Three buses (c) \_\_\_\_\_ (hire) and all students (d) \_\_\_\_\_ the gardens and its natural beauty.

3. The driver (a) \_\_\_\_\_ with an accident as it was a case of (b) \_\_\_\_\_ driving. His (c) \_\_\_\_\_ could not be recorded because he was (d) \_\_\_\_\_ injured.

4. Our life today (a) \_\_\_\_\_ surrounded by all kinds of (b) \_\_\_\_\_, which has made our life very (c) \_\_\_\_\_. The (d) \_\_\_\_\_ on the internet is just a (e) \_\_\_\_\_ away.

### II. Sentence Re-ordering:

**Arrange the following jumbled up words and phrases into meaningful sentences. Also, use appropriate punctuation marks.**

1.

- a. homophones / are / known as / sounding / words / similar
- b. opposite / antonyms / words / meaning / known as / in / are
- c. similar / in / words / meaning / synonyms / are / known as

2.

- a. become / TV / medium / a / has / powerful / days / these
- b. people / glued / children / and / older / remain / it / to
- c. entertainment / all / become / a great / for / it / has / source of

3.

Mother: seen / the / coat / condition / of / have / you / your?

Son: fell / muddy / I / into a / pool of / water

Mother: careful / must / you / while / be / walking

4.

- a. its / urbanization / in India / everywhere / has / tentacles / spread
- b. only / the country / a / land / of / remains / villages / in name

c. policy-makers / numerous / this / posed / challenges / has / the / to

**III. Editing:**

**The following passages have not been edited. There is an error in each line against which a blank is given. Write the incorrect word and the corrected word against the blank as given in the example.**

	<b>ERROR</b>	<b>CORRECTION</b>
<b>1.</b>		
In the evening, as I am	e.g. am	was
returning by the office, I	(a) _____	_____
saw a disorderly row to	(b) _____	_____
vehicles. An accident had took	(c) _____	_____
place killing two boys and injure	(d) _____	_____
three others. The boys are	(e) _____	_____
driving in high speed.	(f) _____	_____

	<b>ERROR</b>	<b>CORRECTION</b>
<b>2.</b>		
Kashmir is right called the	e.g. right	rightly
'Paradise in Earth'. Its beauty	(a) _____	_____
is to be see to be believed.	(b) _____	_____
The rivers, hill, mountains and	(c) _____	_____
gardens are the tourist attract.	(d) _____	_____
_The snowclad mountains is	(e) _____	_____
a treat of the eyes.	(f) _____	_____

**IV. Omission:**

**In the following passages, one word has been omitted in each line. Write the missing word along with the word that comes before and the word that comes after it against the blanks given. The first one has been done for you.**

	<b>Before Missing Word</b>	<b>After</b>
<b>1.</b>		
Everyone wishes to healthy	eg. to	be healthy
but not are ready to	(a) _____	_____
work in direction.	(b) _____	_____
It takes a lot discipline	(c) _____	_____
to maintain regular and	(d) _____	_____
a strict regimen. Most the	(e) _____	_____
people, come up excuses.	(f) _____	_____

	<b>Before Missing Word</b>	<b>After</b>
<b>2.</b>		
I am so fond watching	eg. fond	of watching
cricket. I have always sports	(a) _____	_____
and till it remains my passion.	(b) _____	_____
My father against my joining	(c) _____	_____

sports academy. My sports player Dhoni. There is a film made on his life journey.

(d) \_\_\_\_\_  
(e) \_\_\_\_\_  
(f) \_\_\_\_\_

## **SCIENCE**

Make working model on any one of the following topics-

1. Environmental Concerns
2. Waste Management
3. Technology & Toys
4. Communication & Transport

Also write project report for the chosen topic.

**Project report to be written in the given format-**

- a) Topic
- b) Material Required
- c) Theory
- d) Principle
- e) Circuit Diagram
- f) Procedure
- g) Applications

Reference-

1. [https://youtu.be/4h9\\_RfR-VUM](https://youtu.be/4h9_RfR-VUM)
2. <https://youtu.be/DpcRcgvfEQ4?si=-1Lca7OQUAwcHvdS>
3. <https://youtu.be/VlpJeBBwwN0>

## **CHEMISTRY**

### **ASSIGNMENT**

**Complete the given assignment in A-4 sheet.**

Choose the correct answer

- 1 Which one of the following sets of phenomena would increase on raising the temperature?

- (a) Diffusion, evaporation, compression of gases
  - (b) Evaporation, compression of gases, solubility
  - (c) Evaporation, diffusion, expansion of gases
  - (d) Evaporation, solubility, diffusion, compression of gases
- 2 Seema visited a Natural Gas Compressing Unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience with friends she got confused. Help her to identify the correct set of conditions
- (a) Low temperature, low pressure
  - (b) High temperature, low pressure
  - (c) Low temperature, high pressure
  - (d) High temperature, high pressure
- 3 The property to flow is unique to fluids. Which one of the following statements is correct?
- (a) Only gases behave like fluids
  - (b) Gases and solids behave like fluids
  - (c) Gases and liquids behave like fluids
  - (d) Only liquids are fluids
- 4 A few substances are arranged in the increasing order of 'forces of attraction' between their particles. Which one of the following represents a correct arrangement?
- (a) Water, air, wind
  - (b) Air, sugar, oil
  - (c) Oxygen, water, sugar
  - (d) Salt, juice, air
- 5 The boiling points of diethyl ether, acetone and n-butyl alcohol are 35°C, 56°C and 118°C respectively. Which one of the following correctly represents their boiling points in kelvin scale? (a) 306 K, 329 K, 391 K
- (b) 308 K, 329 K, 392 K
  - (c) 308 K, 329 K, 391 K
  - (d) 329 K, 392 K, 308 K
- 6 Which condition out of the following will increase the evaporation of water?
- (a) Increase in temperature of water
  - (b) Decrease in temperature of water
  - (c) Less exposed surface area of water
  - (d) Adding common salt to water
- 7 In which of the following conditions, the distance between the molecules of hydrogen gas would increase?
- (i) Increasing pressure on hydrogen contained in a closed container
  - (ii) Some hydrogen gas leaking out of the container
  - (iii) Increasing the volume of the container of hydrogen gas
  - (iv) Adding more hydrogen gas to the container without increasing the volume of the container
- (a) (i) and (iii)

- (b) (i) and (iv)  
 (c) (ii) and (iii)  
 (d) (ii) and (iv)
- 8 During summer, water kept in an earthen pot becomes cool because of the phenomenon of  
 (a) diffusion  
 (b) transpiration  
 (c) osmosis  
 (d) evaporation
- 9 Choose the correct statement of the following  
 (a) conversion of solid into vapours without passing through the liquid state is called sublimation. (b) conversion of vapours into solid without passing through the liquid state is called vapourisation..  
 (c) conversion of vapours into solid without passing through the liquid state is called freezing.  
 (d) conversion of solid into liquid is called sublimation.
- 10 On converting  $25^{\circ}\text{C}$ ,  $38^{\circ}\text{C}$  and  $66^{\circ}\text{C}$  to kelvin scale, the correct sequence of temperature will be  
 (a) 298 K, 311 K and 339 K  
 (b) 298 K, 300 K and 338 K  
 (c) 273 K, 278 K and 543 K  
 (d) 298 K, 310 K and 338 K

Answer the following questions:

- 1 A sample of water under study was found to boil at  $102^{\circ}\text{C}$  at normal temperature and pressure. Is the water pure? Will this water freeze at  $0^{\circ}\text{C}$ ? Comment.
- 2 Alka was making tea in a kettle. Suddenly she felt intense heat from the puff of steam gushing out of the spout of the kettle. She wondered whether the temperature of the steam was higher than that of the water boiling in the kettle. Comment.
- 3 (a) Conversion of solid to vapour is called sublimation. Name the term used to denote the conversion of vapour to solid.  
 (b) Conversion of solid state to liquid state is called fusion; what is meant by latent heat of fusion?
- 4 A student heats a beaker containing ice and water. He measures the temperature of the content of the beaker as a function of time. Which of the following (Fig. 1.1) would correctly represent the result? Justify your choice.

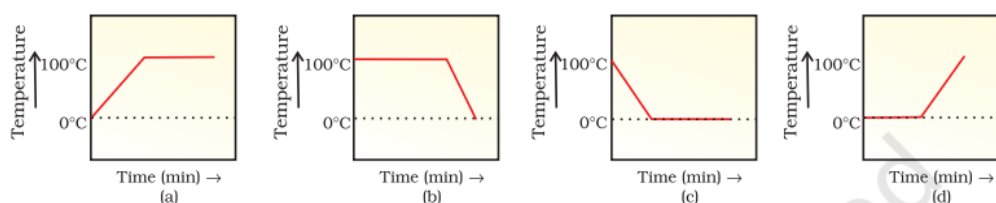


Fig. 1.1

- 5 Write different methods involved in the separation of mixture of ammonium chloride, common salt and sand.

## **PHYSICS**

### **ASSIGNMENT**

**Complete the given assignment in A-4 sheet.**

Choose the correct answer-

1. When a rubber balloon held between the hands is pressed, its shape changes. This happens because
  - a) balanced forces act on the balloon
  - b) unbalanced forces act on the balloon
  - c) frictional forces act on the balloon
  - d) gravitational forces act on the balloon
2. The inertia of a moving object depends on
  - a) momentum of the object
  - b) speed of the object
  - c) mass of the object
  - d) shape of the object
3. What is the SI unit of momentum?
  - a) kgms
  - b) ms/kg
  - c) Kgms<sup>-1</sup>
  - d) kg/ms
4. An object of mass 4 kg moves with a velocity of 4 m/s, then its momentum will be
  - a) 16 m/s
  - b) 4 m/s
  - c) 16 kg-m/s
  - d) 4 kg-m/s
5. Newton's first law introduces the concept of ---.
  - a) Momentum
  - b) Inertia
  - c) Conservation of energy.
  - d) Action and reaction.



6. What would be the displacement of a particle moving in a circular path of radius  $r$  after a displacement of half a circle?

- a)  $2\pi r$
- b)  $\pi r$
- c)  $2r$
- d) Zero

7. What does the slope of the distance-time graph give?

- a) speed
- b) velocity
- c) acceleration
- d) displacement

8. In which of the following cases of motions, the distance moved and the magnitude of displacement are equal ?

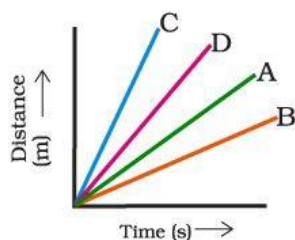
- a) If the car is moving on straight road
- b) If the car is moving in circular path
- c) The pendulum is moving to and fro
- d) The earth is revolving around the Sun

9. The numerical ratio of displacement to the distance for a moving object is

- a) always less than 1
- b) always equal to 1
- c) always more than 1
- d) equal or less than 1

10. Four cars, A, B, C and D, are moving on a levelled road. Their distance versus time graphs are shown in Fig. Choose the correct statement

- a) Car A is faster than car D.
- b) Car B is the slowest.
- c) Car D is faster than car C.
- d) Car C is the slowest.



Answer the following questions:

11. Describe all the three types of Inertia with three examples of each.
12. What is Force? Discuss all the effects of force with two examples of each.
13. A motor cycle moving with a speed of 5 m/s is subjected to an acceleration of 0.2 m/s<sup>2</sup>. Calculate the speed of the motor cycle after 10 seconds and the distance travelled in this time.
14. The brakes applied to a car produce an acceleration of 6 m/s<sup>2</sup> in the opposite direction to the motion. If the car takes 2 seconds to stop after the application of brakes, calculate the distance it travels during this time.
15. A train starting from rest attains a velocity of 72 km/h in 5 minutes. Assuming that the acceleration is uniform, find
  - a. the acceleration and
  - b. the distance travelled by the train for attaining this velocity.

## **BIOLOGY**

### **WORKSHEET – THE FUNDAMENTAL UNIT OF LIFE**

Complete the given assignment in A-4 sheet.

1. Why does the skin of your finger shrink when you wash clothes for a long time?
2. A person takes concentrated solution of salt, after some time, he starts vomiting. What is the phenomenon responsible for such situation? Explain.
3. Name any cell organelle which is non- membranous.
4. If you are provided with some vegetables to cook. You generally add salt into the vegetables during cooking process. After adding salt, vegetables release water. What mechanism is responsible for this?
5. If cells of onion peel and RBC are separately kept in hypotonic solution, what among the following will take place? Explain the reason for your answer.
  - (a) Both the cells will swell.
  - (b) RBC will burst easily while cells of onion peel will resist the bursting to some extent.
  - (c) a and b both are correct.
  - (d) RBC and onion peel cells will behave similarly.
6. Name the organelles which show the analogy written as under
  - (a) Transporting channels of the cell \_\_\_\_\_
  - (b) Power house of the cell \_\_\_\_\_
  - (c) Packaging and dispatching unit of the cell \_\_\_\_\_
  - (d) Digestive bag of the cell \_\_\_\_\_
  - (e) Storage sacs of the cell \_\_\_\_\_
  - (f) Kitchen of the cell \_\_\_\_\_
  - (g) Control room of the cell \_\_\_\_\_
7. How is a bacterial cell different from an onion peel cell?

8. How do substances like carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O) move in and out of the cell?
9. Name the two organelles in a plant cell that contain their own genetic material and ribosomes.
10. Which cell organelle controls most of the activities of the cell?
11. Which kind of plastid is more common in
  - (a) roots of the plant
  - (b) leaves of the plant
  - (c) flowers and fruits.
12. Why do plant cells possess large sized vacuole?
13. What are the consequences of the following conditions?
  - (a) A cell containing higher water concentration than the surrounding medium.
  - (b) A cell having low water concentration than the surrounding medium.
  - (c) A cell having equal water concentration to its surrounding medium.
14. Draw a plant cell and label the parts which
  - (a) determines the function and development of the cell
  - (b) packages materials coming from the endoplasmic reticulum
  - (c) provides resistance to microbes to withstand hypotonic external media without bursting
  - (d) is site for many biochemical reactions necessary to sustain life.
  - (e) is a fluid contained inside the nucleus.
15.
  - a) Draw a neat labelled diagram of an animal cell.
  - b) Draw a well labelled diagram of an eukaryotic nucleus. How is it different from nucleoid?

## **SOCIAL SCIENCE**

- Every student has to compulsorily undertake one project on Disaster Management.

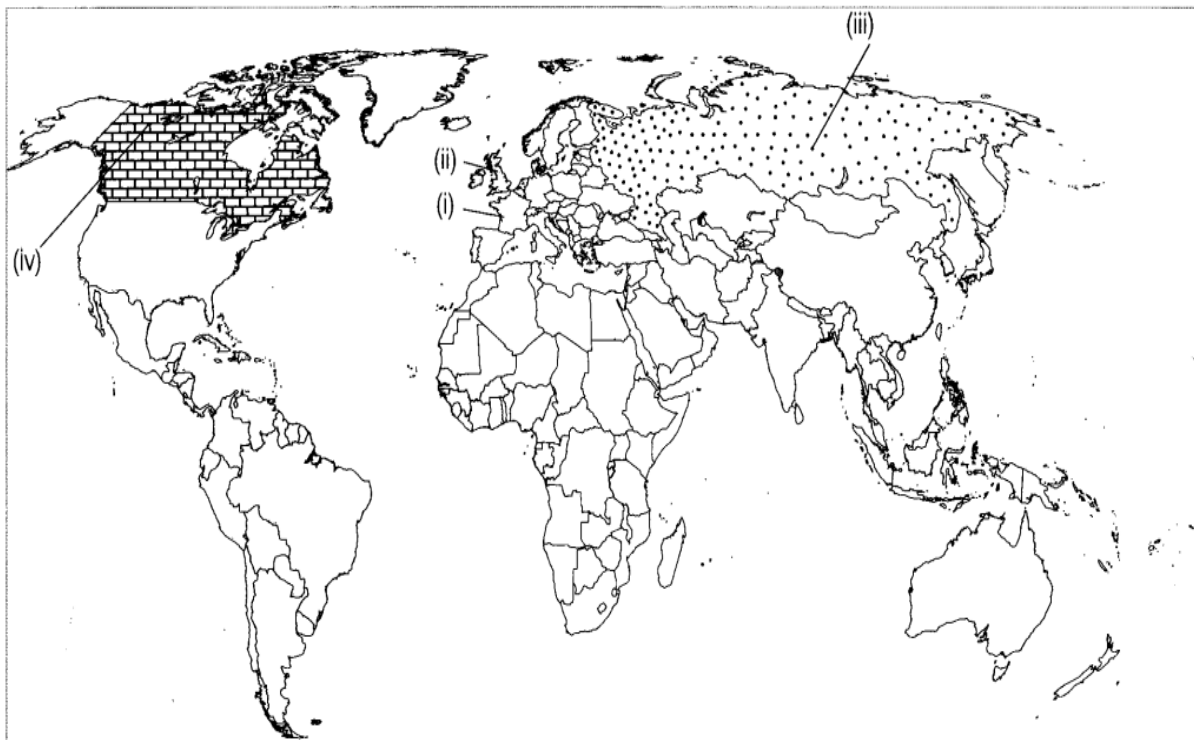
Objectives: The main objectives of giving project work on Disaster Management to the students are to:

- a. Creates awareness in them about different disasters, their consequences and management.
- b. Prepares them in advance to face such situations.
- c. Enables them to create awareness and preparedness among the community.

## **HISTORY ASSIGNMENT (TO BE DONE IN CLASS NOTEBOOK)** **SOCIALISM IN EUROPE AND THE RUSSIAN REVOLUTION**

1. Who was Karl Marx?
2. What was Lenin's 'April Theses'?
3. Describe the views of conservatives.
4. What was the basic idea of socialism?

5. Distinguish between the ideas of liberals and the radicals.
6. Which incident of the Russian history is known as 'Bloody Sunday'?
7. Explain any three major effects of the Russian Revolution of October 1917 on Russian economy.
8. Who ruled Russia in 1914? How did he manage his empire? Explain.
9. Explain the three events that were responsible for the Russian Revolution of 1905.
10. Explain the views of different socialists and philosophers regarding the vision of the future or to transform the society.
11. Explain any three reasons which led to civil war between the Bolsheviks and the Russian army of non-Bolsheviks.
12. Explain the economic condition of the workers before the Russian Revolution.
13. Mention any four features of the Russian economy at the beginning of the 20th century.
14. What were the differences between the Russian peasants and the other peasants of Europe?
15. On the given outline map of the world, four features are marked. These are the countries that were Allied Powers in the First World War. Identify them.



## HINDI

- बचेंद्री पाल के जीवन व एवरेस्ट पर चढ़ने की यात्रा पर PPT तैयार करे ।
- समाचार पत्र की 5 विभिन्न घटनाओं का सभ्य भाषा में स्वयं लेखन कीजिए ।
- हिन्दी शब्दकोष व प्रमुख पृष्ठ की रूपरेखा तैयार कीजिए ।

- 'रामधारी सिंह दिनकर' का लेख –“हिम्मत और ज़िंदगी” अपने शब्दों में लिखिए ।

## संस्कृत

- 1) अध्याय प्रथम से पंचम के शब्दार्थों से एक शब्द कोश का निर्माण करें तथा हस्त निर्मित सञ्चिका (कापी) बनाए ।
- 2) विद्या, सत्संगति, नीति पर आधारित चार श्लोक अर्थ सहित लिखकर एक टाँगने वाला चार्ट बनाईए ।
- 3) अकारान्त, इकारान्त, उकारान्त, ऋकारान्त पुल्लिङ्ग आकारान्त ईकारान्त ऋकारान्त इकारान्त स्त्रीलिङ्ग शब्द रूपों को लिखकर याद कीजिए ।
- 4) उपपद विभक्तियों को लिखकर प्रत्येक के दो-दो वाक्य लिखें ।
- 5) पा, दा, स्था, गम, गै (गाय), नम, अस्, कृ धातूओं के पाँचों लकारों में रूप लिखिए ।

## MATHS

### **A. PROJECT:**

Prepare a project to construct a square root spiral activity.

### **B. ASSIGNMENT:**

#### **Chapter 1 Number systems**

1.  $0.\overline{001}$  when expressed in in the form  $\frac{p}{q}$  (p, q are integers,  $q \neq 0$ ), is  
 (a)  $\frac{1}{1000}$       (b)  $\frac{1}{100}$       (c)  $\frac{1}{1999}$       (d)  $\frac{1}{999}$
2. The value of  $0.\overline{23} + 0.\overline{22}$  is  
 (a)  $0.\overline{45}$       (b)  $0.\overline{43}$       (c)  $0.\overline{45}$       (d)  $0.45$
3. An irrational between 2 and 2.5 is  
 (a)  $\sqrt{11}$       (b)  $\sqrt{5}$       (c)  $\sqrt{22^{0.5}}$       (d)  $\sqrt{12.5}$
4. The number of Consecutive zeros in  $2^3 \times 3^4 \times 5^4 \times 7$ , is  
 (a) 3      (b) 2      (c) 4      (d) 5
5. If  $10^{2y} = 25$ , then  $10^{-y}$  equals  
 (a)  $-\frac{1}{5}$       (b)  $\frac{1}{50}$       (c)  $\frac{1}{625}$       (d)  $\frac{1}{5}$
6. If  $9^{x+2} = 240 + 9^x$ , then x =  
 (a) 0.5      (b) 0.2      (c) 0.4      (d) 0.1
7. If x is a positive real number and  $x^2 = 2$ , then  $x^3 =$   
 (a)  $\sqrt{2}$       (b)  $2\sqrt{2}$       (c)  $3\sqrt{2}$       (d) 4
8. If  $\frac{x}{x^{15}} = 8x^{-1}$  and  $x > 0$ , then x =  
 (a)  $\frac{\sqrt{2}}{4}$       (b)  $2\sqrt{2}$       (c) 4      (d) 64
9.  $\frac{1}{\sqrt{9-\sqrt{8}}}$  is equal to

- (a)  $3 + 2\sqrt{2}$  (b)  $\frac{1}{3+2\sqrt{2}}$  (c)  $3 - 2\sqrt{2}$  (d)  $\frac{3}{2} - \sqrt{2}$
10. The value of  $\frac{\sqrt{48+\sqrt{32}}}{\sqrt{27+\sqrt{18}}}$ , is  
 (a)  $\frac{4}{3}$  (b) 4 (c) 3 (d)  $\frac{3}{4}$
11. If  $\frac{\sqrt{3}-1}{\sqrt{3}+1} = x + y\sqrt{3}$ , find the values of x and y.
12. If  $x = 2 + \sqrt{3}$ , find the value of  $x^3 + \frac{1}{x^3}$
13. If  $x = 3 + \sqrt{8}$ , find the value of  $x^2 + \frac{1}{x^2}$
14. Given  $4725 = 3^a 5^b 7^c$ , find  
 (i) the integral values of a, b and c  
 (ii) the value of  $2^{-a} 3^b 7^c$
15. If  $a = xy^{p-1}$ ,  $b = xy^{q-1}$  and  $c = xy^{r-1}$ , Prove that  $a^{q-r} b^{r-p} c^{p-q} = 1$ .

## Chapter – 2 Polynomials

**Questions 1 – 5 are Multiple Choice Questions (MCQs). Select the correct option.**

- Degree of polynomial  $x^2(4x^2 + 5x + 7)$  is  
 (a) 4 (b) 5 (c) 3 (d) 7
- Degree of the zero polynomial is  
 (a) 0 (b) 1 (c) Any natural number (d) Not defined
- Zeros of the polynomial  $p(x) = 2x^2 + 5x - 3$  are  
 (a)  $\frac{1}{2}, 3$  (b)  $\frac{1}{2}, -3$  (c)  $-\frac{1}{2}, -3$  (d)  $1, \frac{1}{2}$
- One of the factors of  $(25x^2 - 1) + (1 + 5x)^2$  is  
 (a)  $5 + x$  (b)  $5 - x$  (c)  $5x - 1$  (d)  $10x$
- If  $p(x) = x^2 - 2\sqrt{2}x + 1$ , then  $p(2)$  is  
 (a) 0 (b) 1 (c)  $4\sqrt{2}$  (d)  $8\sqrt{2} + 1$

**Questions 6 – 8 are Fill in the Blanks.**

- The coefficient of  $x^2$  in the expansion of  $(2x - 7)^3$  is \_\_\_\_\_.
  - If  $p(x) = x + 3$ , then  $p(a) + p(-a)$  is \_\_\_\_\_.
  - Degree of zero polynomial is \_\_\_\_\_.
- Questions 9 – 10 are Very Short Answer Questions.
- If  $a^2 + b^2 + c^2 = 20$  and  $a + b + c = 0$ , find  $ab + bc + ca$ .
  - Evaluate:  $(18)^3 - (5)^3 - (13)^3$ .

**Questions 11 – 15 are short Answer Questions.**

- If  $x + \frac{1}{x} = 3$ , find the value of  $x^2 + \frac{1}{x^2}$ .
- Without finding the cubes, factorise  $(x - 2y)^3 + (2y - 3z)^3 + (3z - x)^3$ .
- The value of  $\frac{37^3 - 28^3}{37^2 + 37 \cdot 28 + 28^2}$  is \_\_\_\_\_.
- If  $a + b + c = 9$  and  $ab + bc + ca = 26$ , find  $a^2 + b^2 + c^2$ .
- Find the product of  $(7a - 5b)(49a^2 + 35ab + 25b^2)$ .

**Questions 16 – 17 are Long Answer Questions.**

16. What must be subtracted from the polynomial  $2x^3 + x^2 - 15x - 15$  so that the resulting polynomial is exactly divisible by  $(x + 2)$ .
17. Factorise  $(x^2 - 4x)(x^2 - 4x - 1) - 20$ .

**Questions 18 – 19 are Assertion - Reasoning Based Problems.**

Each of the following examples contains STATEMENT – 1 (Assertion) and STATEMENT – 2 (Reason) and has following four choices (a), (b), (c) and (d), only one of which is the correct answer: Mark the correct choice.

- (a) Statement – 1 and Statement – 2 are True; Statement – 2 is a correct explanation for Statement – 1.
- (b) Statement – 1 and Statement – 2 are True; Statement – 2 is not a correct explanation for Statement – 1 .
- (c) Statement – 1 is True, Statement – 2 is False.
- (d) Statement – 1 is True, Statement – 2 is True.
18. Statement – 1 (A):  $(a - b)^3 + (b - c)^3 + (c - a)^3 = 3(a - b)(b - c)(c - a)$ .  
Statement – 2 (R): If  $a + b + c = 0$ , then  $a^3 + b^3 + c^3 = 3abc$ .
19. Statement – 1 (A): The value of  $\frac{(0.027)^3 + (0.023)^3}{(0.027)^2 - (0.027)(0.023) + (0.023)^2}$  is 0.05.  
Statement – 2 (R):  $a^3 - b^3 = (a - b)(a^2 - ab + b^2)$ .

**Chapter 3 Coordinate Geometry**

1. The point of intersect of the coordinate axes is  
(a) ordinate (b) abscissa (c) quadrant  
(d) origin
2. The abscissa and ordinate of the origin are  
(a) (0, 0) (b) (1, 0) (c) (0, 1) (d) (1, 1)
3. The measure of the angle between the coordinate axes is  
(a)  $0^\circ$  (b)  $90^\circ$  (c)  $180^\circ$  (d)  $360^\circ$
4. A point whose abscissa and angle ordinate re 2 and  $-5$  respectively, lies in  
(a) First quadrant (b) Second quadrant (c) Third quadrant  
(d) Fourth quadrant
5. Points  $(-4, 0)$  and  $(7, 0)$  lie  
(a) on x – axis (b) y – axis (c) in first quadrant (d)  
In second quadrant
6. In which quadrant or on which axis do each of the points  $(-2, 4)$ ,  $(3, -1)$ ,  $(-1, 0)$ ,  $(1, 2)$  and  $(-3, -5)$  lie? Verify your answer by locating them on the Cartesian plane.
7. Locate the points  $(5, 0)$ ,  $(0, 5)$ ,  $(2, 5)$ ,  $(5, 2)$ ,  $(-3, 5)$ ,  $(-3, -5)$ ,  $(5, -3)$  and  $(6, 1)$  in the Cartesian plane.
8. In which quadrant will the point lie if its:  
(i) the ordinate is 8 and the abscissa is  $-4$ . (ii) the abscissa is  $-6$  and the ordinate is  $-3$ .  
(iii) the ordinate is 4 and the abscissa is 5. (iv) the ordinate is 4 and the abscissa  $-4$ .

9. Write whether the following statements are True or False. Justify your answer .
- (i) Point  $(0, - 2)$  lies on  $y$ -axis
  - (ii) The perpendicular distance of the point  $(4, 3)$  from the  $x$ -axis is 4.
10. Point  $(-5, 3)$  lies in the:
- (a) first quadrant
  - (b) second quadrant
  - (c) Third quadrant
  - (d) Forth quadrant
11. Signs of the abscissa and ordinate of a point in the second quadrant are respectively:
- (a) +, +
  - (b) -, -
  - (c) -, +
  - (d) +, -
12. Point  $(0, - 5)$  lies.
- (a) on the  $x$ -axis
  - (b) in the second quadrant
  - (c) on the  $y$ -axis
  - (d) in the fourth quadrant
13. Abscissa of the points on the  $x$ -axis is:
- (a) 0
  - (b) 1
  - (c) 2
  - (d) any number.
14. Ordinate of all points on the  $x$ -axis is:
- (a) 0
  - (b) 1
  - (c)  $- 1$
  - (d) any number