

The Wisdom School, Sirsa

Holiday Homework

Grade –9th

Subjects	Homework
English	<ol style="list-style-type: none"> Complete all Worksheets of letter writing and Analytical Paragraph Write a speech - "Is Materialism more important than values" based on the story 'The Necklace'. Write a diary entry from the perspective of the narrator 'The Black Aeroplane'. Poetic Device Collage - Create a visual representation (PPT / On A3 size sheet) of at least 5 poetic devices. Each device should have: <ul style="list-style-type: none"> A definition. An example from the syllabus. An example of the student's own. Illustrations or visuals to represent it. <p>Example: Device: Alliteration Definition: Repetition of consonant sounds at the beginning of words. Example from poem: "Some say the world will end in fire" (Fire and Ice).</p> Do the given worksheet in a thin notebook
Hindi	<ol style="list-style-type: none"> ई-मेल लेखन आप मयंक/महक गुप्ता हैं। आप प्रकाशक से ऑनलाइन पुस्तकें मंगवाना चाहते हैं। ऑनलाइन पुस्तक मंगवाने हेतु प्रकाशक को ई-मेल लिखिए। अनुच्छेद लेखन *जैसी संगति बैठिए, तेसो ही फल दीन। * सोशल साइट्स और विद्यार्थी विज्ञापन लेखन प्रदूषण से बचने के लिए जनहित में जारी एक विज्ञापन पर्यावरण विभाग की ओर से तैयार कीजिए। (A4शीट पर) याद कीजिए क्षितिज गद्य खंड - पाठ - नेता जी का चश्मा क्षितिज पद्य खंड - कविता- उत्साह , अट नहीं रही। कृतिका- साना साना हाथ जोड़ी। अलंकार, पद -परिचय।
Mathematics	Two Sample Papers Write in Separate notebook.
Science	1. Make a project report on A4 size sheet with proper title – page, acknowledgment and atleast 4 to 5 pages of content according to the following Roll.

	<p>No.</p> <ul style="list-style-type: none"> Roll no. 1 to 10 : Make a project report on Ch- Sound ,explaining production & propagation of sound, types of waves and characteristics of sound waves Roll no. 11 to 20 : Make a project report on the topic - plant tissue, explaining their types, occurrence, function and diagrams. Roll no. 21 onwards : Make a project report on the topic Structure of atom, explaining their models, distribution of electrons in orbits of 1-20 elements. <p>2. Solve the sample papers in a separate note book given in the pdf attached.</p>
S.SC.	<p>Learn the following chapters thoroughly:</p> <p>Ch- Nationalism in India Ch- Minerals and Energy Resources Ch- Money and Credit</p> <p>Students are also required to practice the given worksheets on a separate thin notebook or on loose sheets.</p>
Punjabi	<p>ਸਾਹਿਤ ਮਾਲਾ:-ਕਵਿਤਾ ਭਾਗ:-</p> <p>ਪਾਠ- 1 ਤੋਂ 4 ਤੱਕ ਦੀ ਦੁਹਰਾਈ ਕਰੋ ਅਤੇ ਯਾਦ ਕਰੋ। ਵਾਰਤਕ-ਭਾਗ ਪਾਠ-1 ਤੋਂ 3 ਤੱਕ</p> <p>ਵੰਨਗੀ -ਕਹਾਣੀ-ਕੁਲਫੀ ਅਤੇ ਅੰਗ -ਸੰਗ ਨੂੰ ਯਾਦ ਕਰੋ। ਇਕਾਂਗੀ 'ਜਫ਼ਰਨਾਮਾ' ਯਾਦ ਕਰੋ।</p> <p>ਵਿਆਕਰਨ</p> <p>ਲੇਖ ਰਚਨਾ :-</p> <ul style="list-style-type: none"> ਆਨਲਾਈਨ ਪੜ੍ਹਾਈ ਅਤੇ ਨਵੇਂ ਸੰਚਾਰ ਦੇ ਸਾਧਨਾਂ ਦੀ ਭੂਮਿਕਾ <p>ਰਸਮੀ ਪੱਤਰ- ਕਿਸੇ ਬੈਂਕ ਦੇ ਮੈਨੇਜਰ ਨੂੰ ਆਪਣੇ ਆਧਾਰ ਕਾਰਡ ਨੂੰ ਬੈਂਕ ਅਕਾਊਂਟ ਨਾਲ ਜੋੜਨ ਲਈ ਬੇਨਤੀ ਕਰੋ।</p> <p>ਗੈਰ-ਰਸਮੀ ਪੱਤਰ</p> <p>ਮੰਨ ਲਓ ਤੁਹਾਡਾ ਨਾਂ ਏਕਮ ਹੈ ਤੁਹਾਡੇ ਪਿਤਾ ਜੀ ਵਿਦੇਸ਼ ਰਹਿੰਦੇ ਹਨ ਇਸ ਵਾਰ ਤੁਸੀਂ ਆਪਣਾ ਜਨਮ ਦਿਨ ਕੁਝ ਵੱਖਰੀ ਤਰ੍ਹਾਂ ਨਾਲ ਮਨਾਉਣਾ ਚਾਹੁੰਦੇ ਹੋ ਇਸ ਸਬੰਧੀ ਆਪਣੇ ਪਿਤਾ ਜੀ ਨੂੰ ਇੱਕ ਚਿੱਠੀ ਲਿਖੋ।</p> <p>ਮੁਹਾਵਰੇ- ਕ ਤੋਂ ਝ ਤੱਕ ਹਰ ਅੱਖਰ ਨਾਲ ਸਬੰਧਤ ਪੰਜ-ਪੰਜ ਮੁਹਾਵਰੇ ਲਿਖੋ।</p> <p>(A4 Size Sheet)</p> <p>ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ, ਸਮਾਸੀ ਸ਼ਬਦ ਅਤੇ ਅਗੇਤਰ-ਪਿਛੇਤਰ ਦੀ ਦੁਹਰਾਈ ਕਰੋ।</p>
I.T.	<p>Solve sample paper</p> <p>Learn ch-13 to 15 and do questions answers from grade -10 syllabus.</p>

Worksheet 1 (Social Studies)

Ch- Nationalism in India

5 MARK QUESTIONS

1. Explain the idea of Satyagraha according to Gandhiji.
2. Why did Mahatma Gandhi decide to withdraw the Non-Cooperation Movement in 1922?
3. Explain the role of Mahatma Gandhi in the Indian National Movement.
4. Describe the main features of the Non-Cooperation Movement.
5. How did the Civil Disobedience Movement start? Explain any four features.
6. Explain the impact of the First World War on India.
7. Why was the Simon Commission opposed in India?
8. Describe the main events of the Dandi March (Salt March).
9. How did different social groups participate in the Civil Disobedience Movement?
10. Explain the importance of the Lahore Session of Congress, 1929.

3 MARK QUESTIONS

11. What was the Rowlatt Act? Why was it opposed?
12. What was the Khilafat Movement?
13. State any three causes of the Non-Cooperation Movement.
14. What was the Salt Law? Why was it resented by Indians?
15. Mention any three effects of the Non-Cooperation Movement.
16. What is meant by Purna Swaraj?
17. Why did the Dalits not participate fully in Civil Disobedience Movement?

Worksheet 2

5 MARK QUESTIONS

1. Classify minerals on the basis of their composition. Explain each with examples.
2. Describe the distribution of iron ore in India.
3. Explain the importance of minerals in the economic development of India.
4. Explain the types of coal found in India. Write any three uses of coal.
5. Describe the distribution of petroleum in India.
6. Explain the difference between conventional and non-conventional sources of energy.
7. Why is conservation of minerals necessary? Explain any four methods.
8. Explain the distribution of bauxite in India.

3 MARK QUESTIONS

9. What are minerals? How are they formed?
10. Mention any three characteristics of minerals.
11. State any three uses of manganese.
12. Why is mica important? Mention two uses.
13. Name any three non-conventional sources of energy.
14. Give three reasons for the uneven distribution of minerals in India.
15. What are tidal energy and biogas?

1 MARK QUESTIONS

16. Which mineral is the basic raw material for the iron and steel industry?
17. Name the oldest oil refinery in India.
18. Which state is the largest producer of iron ore in India?
19. Which type of coal has the highest carbon content?
20. Name one nuclear power plant in India.

Sample Question Paper 1 (Unsolved)

Science

Time : 3 hrs

General Instructions

M.M. : 80

- The question paper consists of 39 questions.
- All questions are compulsory. There is no overall choice. However, an internal choice is provided in some questions.
- This question paper is divided into five sections A, B, C, D and E.
- Only one of the alternatives has to be attempted in such question.
- Section A** - Consists of 20 Multiple Choice Questions carrying 1 mark each.
- Section B** - Consists of 6 Very Short Answer Type Questions carrying 2 marks each. Answer to these questions should be in the range of 30 to 50 words.
- Section C** - Consists of 7 Short Answer Type Questions carrying 3 marks each. Answer to these questions should be in the range of 50 to 80 words.
- Section D** - Consists of 3 Long Answer Type Questions carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.
- Section E** - Consists of 3 Source Based/Case Based units of assessment of 4 marks each with sub-parts.

Section A

In this section, questions no. 1 to 20 are multiple choice questions. All questions are compulsory.

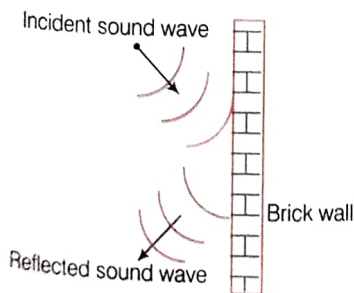
- Consider the following.

Granite, sodium chloride, muddy water, milk of magnesia

How many of them are pure substance?

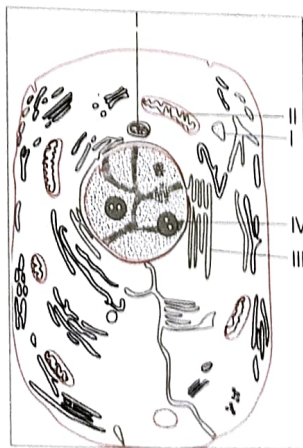
- (a) 1 (b) 2 (c) 3 (d) 4

- A sound wave is reflected from a brick wall. Compared with the incident wave, the reflected wave has



- (a) a greater amplitude
(b) a shorter wavelength
(c) the same speed
(d) the same velocity

- In the given ultrastructure of the animal cell, identify the organelle where ATP formation takes place.



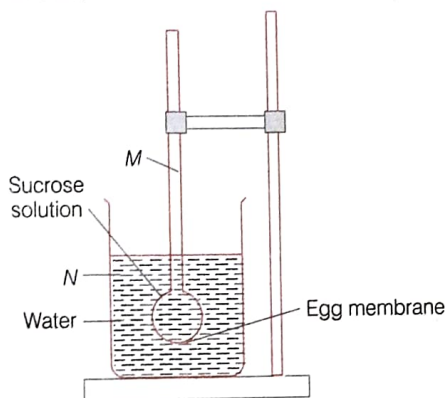
- (a) I and II (b) Only III
(c) Only II (d) I, II, III and IV
- The formula of chloride of metal M is MCl_3 , then formula of the phosphate of metal M will be
(a) MPO_4 (b) M_2PO_4
(c) $M(PO_4)_3$ (d) $M_2(PO_4)_3$

5. Match Column I with Column II and select the correct option.

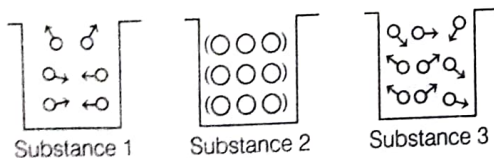
Column I		Column II	
1.	Work	A.	Energy due to motion
2.	Kinetic energy	B.	Work done per unit time
3.	Potential energy	C.	Force x Displacement x cos θ
4.	Power	D.	Energy due to height or position

- (a) 1 → C, 2 → A, 3 → D, 4 → B
 (b) 1 → B, 2 → A, 3 → C, 4 → D
 (c) 1 → D, 2 → C, 3 → A, 4 → B
 (d) 1 → A, 2 → D, 3 → C, 4 → B

6. Given below figure represents demonstration of osmosis by egg membrane osmoscope. After few days, which of the following would have occurred?



- (a) A drop in level N and a drop in level M.
 (b) A drop in level N and a rise in level M.
 (c) A rise in level N and a drop in level M.
 (d) A rise in level N and a drop in level M.
7. The valency of element X is 4 and that of Y is 2. Identify the elements X and Y, respectively.
- (a) Carbon and Sulphur (b) Nitrogen and Chlorine
 (c) Carbon and Nitrogen (d) Sulphur and hydrogen
8. The figure shows the arrangement of particle in three different substances.



Which of the following is correct regarding the state of the substances 1, 2 and 3, respectively?

- (a) Solid, liquid and gas (b) Gas, liquid and solid
 (c) Liquid, gas and solid (d) Gas, solid and liquid

9. A person met with an accident in which two long bones of hand were dislocated. Which among the following may be the possible reason?

- (a) Ligament break
 (b) Tendon break
 (c) Break of skeletal muscle
 (d) Areolar tissue break

10. The symbol of helium is



It shows that

- (a) helium contains two electrons.
 (b) an atom of helium has 2 protons and 4 neutrons in its nucleus.
 (c) helium has a atomic number of 4.
 (d) helium is as a diatomic molecule.

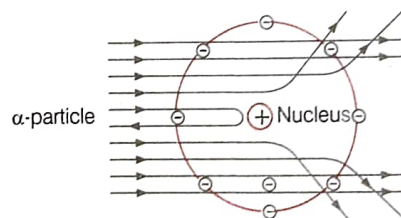
11. Which of the following helps in the repair of tissue and fills up the space inside the organ?

- (a) Tendons (b) Adipose tissue
 (c) Areolar tissue (d) Cartilage

12. A solution contains 50 g of common salt in 450 g of water. The concentration of the solution is

- (a) 500% (b) 50% (c) 10% (d) 80%

13. In the given experiment shown in diagram below.



Most of α -particles pass through gold foil without any deviation. This indicates that

- (a) the atom is spherical.
 (b) nucleus is positively charged and present at centre of atom.
 (c) entire mass of atom is concentrated at the nucleus of the atom.
 (d) most of the atomic space is empty.

14. Which cell division reduces the chromosome number by half?

- (a) Mitosis (b) Meiosis
 (c) Both (a) and (b) (d) None of these

15. Which of the following is not a micronutrient?

- (a) Iron (b) Nitrogen
 (c) Zinc (d) Copper

16. Flexibility in plants is due to

- (a) collenchyma
- (b) sclerenchyma
- (c) parenchyma
- (d) chlorenchyma

Direction (Q.Nos. 17-20) In each of the following questions, a statement of Assertion is given by the corresponding statement of Reason. Out of the given statements, choose the correct one.

- (a) If both A and R are true and R is the correct explanation of A.
- (b) If both A and R are true, but R is not the correct explanation of A.
- (c) If A is true, but R is false.
- (d) If A is false, but R is true.

17. **Assertion (A)** Hybridisation is a way to obtain new and improved varieties of plants and animals.

Reason (R) Crossing may be done between two different varieties, two different species of same genus or different genus.

18. **Assertion (A)** Pure substances in which molecules are made up of only one kind of atoms are known as elements.

Reason (R) Hydrogen, oxygen and nitrogen are elements.

19. **Assertion (A)** A body can float only if it displaces liquid whose weight is equal to the actual weight.

Reason (R) The body will experience zero downward force in that case.

20. **Assertion (A)** Fish and other aquatic animals are used as food by man.

Reason (R) Fish and other varieties of sea food is a good source of protein.

Section B

Question Nos. 21 to 26 are very short answer type questions. Each question carries 2 marks.

- 1. (i) What do you understand by inertia?
- (ii) Give one example each for the inertia of rest and inertia of motion.
- 2. (i) Helium atom has an atomic mass of 4 u and two protons in its nucleus. How many neutrons does it have?
- (ii) Write the distribution of electrons in carbon and sodium atoms.

23. (i) In which medium, speed of the sound is maximum?

Or

(ii) Why we cannot hear an echo in a small room?

24. (i) Name the following :

- (a) Tissue that forms inner lining of mouth.
- (b) Tissue that transports food in plants.

Or

(ii) What happens to the cells formed by meristematic tissue?

25. Observe the diagram and answer the following questions.



- (i) Name the muscles which helps in locomotion.
- (ii) Explain the structure of these muscles.
- (iii) Name the organs in which these muscles are present.

26. In agricultural practices, higher input gives higher yield. Discuss how?

Section C

Question Nos. 27 to 33 are short answer type questions. Each question carries 3 marks.

27. Define

- (i) Vermicompost
- (ii) Green manure
- (iii) Biofertiliser

28. (i) Name the type of colloids in each of the following in which the dispersed phase and the dispersion medium are respectively.

- (a) Liquid and gas
- (b) Liquid and liquid
- (c) Liquid and solid

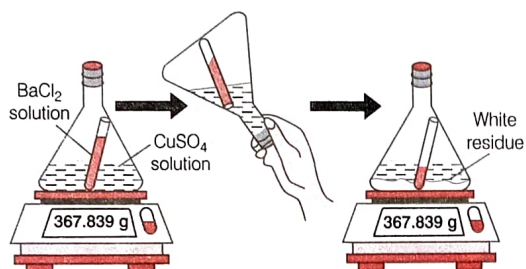
Also, give one example of each.

Or

- (ii) (a) What is meant by concentration of a solution? How will you prepare a 10% solution of sugar?
- (b) Explain, why particles of colloidal solution do not settle down when left undisturbed, while in case of a suspension they do.
- (c) Tincture of iodine has antiseptic properties. How is it prepared?

29. Name the tissue responsible for the flexibility in plants. How would you differentiate it from other permanent tissues?

30. (i)

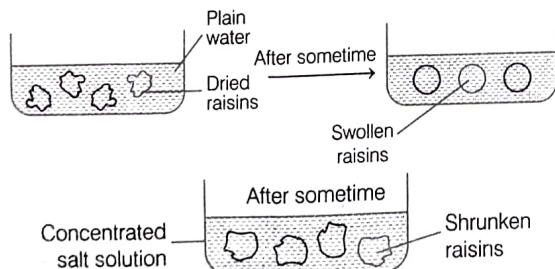


In the above given experiment, does the reaction follow law of conservation of mass? Justify your answer.

(ii) Write the formulae for the following compounds

- Caustic potash
- Limestone
- Common salt

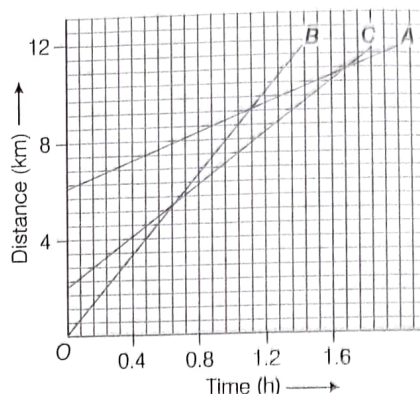
31. When dried raisins are placed in plain water, raisins swell up. Also, when same swelled raisins are placed in concentrated salt solution, raisins shrink.



Analyse and compile the facts for the above experiment and write the whole process in your own words.

- 32. (i)** Calculate the kinetic energy of a car of mass 400 kg moving with a velocity of 72 km/h.
- (ii) If a passenger of mass 50 kg sits in the car, calculate the total kinetic energy of the car and passenger system.

33. Figure shows the distance-time graph of three objects A, B and C. Study the graph and answer the following questions.

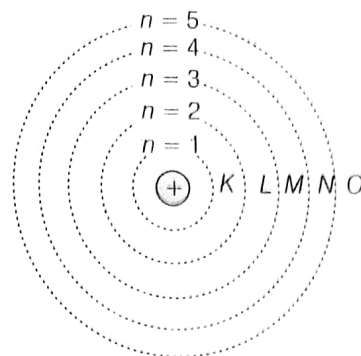


- (i) Which of the three is travelling the fastest?
- (ii) Are all three ever at same point on the road?

Section D

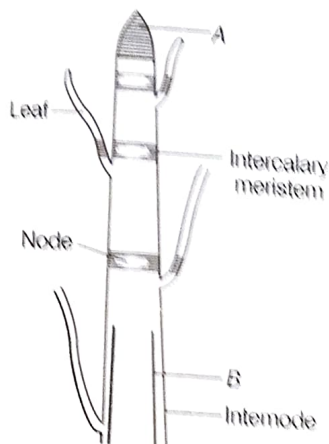
Question Nos. 34 to 36 are long answer type questions. Each question carries 5 marks.

34. (i)



- (a) What is the maximum number of electrons that can be accommodated in the outermost shell of an atom?
- (b) What characteristic feature is seen in the configuration of chemically inactive elements?
- (c) How are ions formed? Explain with example.

- Or (ii) (a) Explain, why the number of atoms in one mole of hydrogen gas is double the number of atoms in one mole of helium gas?
 (b) Explain atomic mass unit.
 (c) How many atoms are present in
 I. MnO_2 molecule
 II. CO molecule?
35. (i) Observe the figure and answer the following questions:

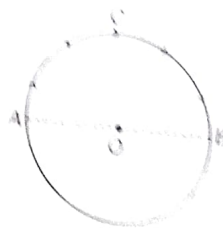


- (a) What does the figure represents?
 (b) Write the function of A and B.
 (c) Which part is responsible for increase in growth of internode?

Or

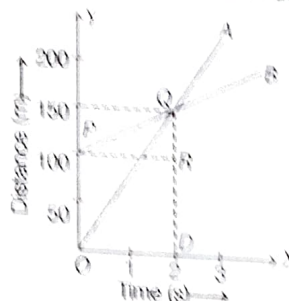
- (ii) Give reasons for
- Meristematic cells have a prominent nucleus and dense cytoplasm but they lack vacuole.
 - Intercellular spaces are absent in sclerenchymatous tissues.
 - We get a crunchy and granular feeling, when we chew pear fruit.
 - Branches of a tree move and bend freely in high wind velocity.
 - It is difficult to pull out the husk of a coconut tree.

36. (i) An insect moves along a circular path of radius 10 cm with a constant speed. It takes 1 min to move from a point on the path to the diametrically opposite point, find (a) the distance covered, (b) the speed, (c) the displacement and (d) the average velocity.



Or

- (ii) The distance-time graph of two trains are shown in figure. The trains start simultaneously in the same direction.



- (a) How much A is ahead of B when the motion starts?
 (b) What is the speed of B?
 (c) When and where will A catch B?
 (d) What is the difference between speeds of A and B?
 (e) Is the speed of both the trains uniform or non-uniform? Justify your answer.

Section E

Question Nos. 37 to 39 are crosssource based questions. Each question carries 4 marks.

37.

Elements	Protons	Neutrons	Electrons
P	19	21	19
Q	20	20	20
R	17	18	17
S	17	20	17

- (i) Find the nature of element R in above table.
 (ii) Define the term isobar and which two elements from the above given table form a pair of isobar?

Or

- (ii) Write the correct increasing order of atomic number of P, Q, R and S.

38. Plant cells, in addition to the plasma membrane, have another rigid outer covering called the cell wall. The cell wall lies outside the plasma membrane. An extensive compartmentalisation of cytoplasm is seen through the presence of membrane-bound organelles. Cell organelles like plastids, vacuoles are present in plant cell but absent in animal cell.

- Name the main constituent of cell wall.
- Name the types of plastids found in plant cells.
- Explain the term protoplasm.

Or

- (iii) Define tonoplast.

39. Newton studied the ideas of Galileo regarding the motion of an object. He formulated three fundamental laws that govern the motion of objects. These three laws are known as Newton's laws of motion.

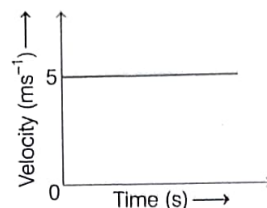
The first law of motion states that an object will continue to remain in its state of rest or of uniform motion along a straight line path unless an external force acts on it. This means, all objects resist change in their state.

The second law of motion states that the rate of change of momentum of an object is directly proportional to the applied external force and takes place in the direction in which external force acts.

The third law of motion states that whenever an object exerts a force on another object, then the

second object exerts an equal and opposite force on the first object.

- Name the physical quantity which corresponds to the rate of change of momentum.
- Give two examples of effects of force.
- Velocity-time graph of a moving particle of mass 1 kg is shown below. What is the force acting on the particle?



Or

- How much momentum will a dumb bell of mass 10 kg transfer to the floor, if it falls from a height of 80 cm? [Take, its downward acceleration to be 10 ms^{-2}]

Sample Question Paper 2 (Unsolved)

Science

Time : 3 hrs

M.M. : 80

General Instructions

- 1 The question paper consists of 39 questions.
- 2 All questions are compulsory. There is no overall choice. However, an internal choice is provided in some questions.
- 3 This question paper is divided into five sections A, B, C, D and E.
- 4 Only one of the alternatives has to be attempted in such question.
- 3 **Section A** - Consists of 20 Multiple Choice Questions carrying 1 mark each.
- 4 **Section B** - Consists of 6 Very Short answer Type Questions carrying 2 marks each. Answer to these questions should be in the range of 30 to 50 words.
- 5 **Section C** - Consists of 7 Short Answer Type Questions carrying 3 marks each. Answer to these questions should be in the range of 50 to 80 words.
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Section A

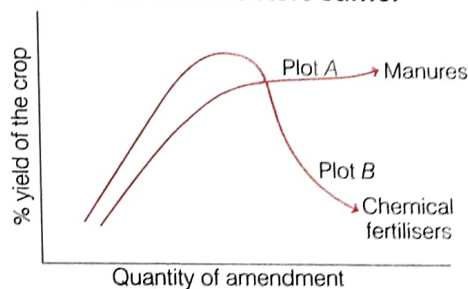
In this section, questions no. 1 to 20 are multiple choice questions. All questions are compulsory.

1. Water \rightleftharpoons Ice
(Liquid) (Solid)

The solid form of water floats on the surface of water because

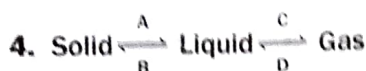
- (a) it is heavier than water.
 - (b) the density of water is same as that of ice.
 - (c) it is lighter than water.
 - (d) None of the above
2. Which of the following statements is incorrect about gravitation?
- (a) Gravitational force between two objects is inversely proportional to the square of the distance between them.
 - (b) Gravitational force between two objects is independent of the masses of the objects.
 - (c) Gravitational force is always attractive in nature.
 - (d) The value of acceleration due to gravity is approximately 9.8 m/s^2 near the surface of the earth.

3. The following figure shows two crop field (plot A and plot B) which have been treated by manures and chemical fertilisers respectively, keeping other environmental factors same.



Which of the following option is best suited to show the reason of delay in highest peak in plot A graph as compared to B.

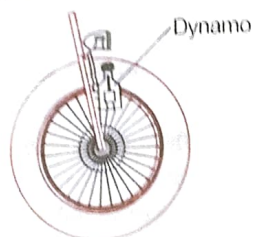
- (a) Manure decay slowly so that release of minerals is also delayed
- (b) Manure decay fastly so that fast release of minerals occurs that shows delayed
- (c) Leaching
- (d) None of the above



Identify the process A, B, C and D.

	A	B	C	D
(a)	Fusion	Freezing	Vapourisation	Condensation
(b)	Freezing	Vapourisation	Fusion	Condensation
(c)	Condensation	Vaporisation	Fusion	Freezing
(d)	Vapourisation	Condensation	Fusion	Freezing

5. Madhur while going home from his school applies brake to slow down his speed. The direction of velocity and acceleration in the given case are



- (a) opposite (b) same
(c) perpendicular (d) not related

6. Which of the following is not the function of epidermis?

- (a) Protection from adverse condition
(b) Gaseous exchange
(c) Conduction of water
(d) Transpiration

7. Consider the following.

- (i) Soil (ii) Coal
(iii) Sodium (iv) Air

Which of them is not mixture?

- (a) (i) and (iii) (b) (ii) and (iv)
(c) (ii) and (iii) (d) Only (iii)

8. The flexibility of plasma membrane can be contributed to the presence of

- (a) proteins (b) lipids
(c) nucleic acids (d) Both (a) and (b)

9. The number of electrons in an element X is 15 and the number of neutrons is 16. Which of the following is the correct representation of the element?

- (a) $^{31}_{15}X$ (b) $^{31}_{16}X$ (c) $^{16}_{15}X$ (d) $^{15}_{16}X$

10. Which of the following is not a chemical change?

- (a) Decaying of wood (b) Burning of wood
(c) Sawing of wood (d) Burning of candle

11. The number of nuclei present in striped muscle fibre is

- (a) one (b) many
(c) two (d) None of these

12. Choose the correct statement of the following.

- (a) Conversion of solid into vapours without passing through the liquid state is called vapourisation.
(b) Conversion of solid into vapours without passing through the liquid state is called sublimation.
(c) Conversion of vapours into solid without passing through the liquid state is called freezing.
(d) Conversion of solid into liquid is called sublimation.

13. Match the Column I with Column II and select the correct option using the given codes

Column I (Formula of compound)	Column II (Molecular mass)
(a) NaCl	(i) 32 u
(b) SO ₂	(ii) 58.5 u
(c) NH ₃	(iii) 17 u
(d) CH ₃ OH	(iv) 64 u

- (a) A→(i), B→(ii), C→(iii), D→(iv)
(b) A→(ii), B→(iv), C→(iii), D→(i)
(c) A→(ii), B→(iv), C→(i), D→(iii)
(d) A→(iii), B→(i), C→(iv), D→(ii)

14. The revolution associated with increased food grain production is

- (a) white revolution (b) golden revolution
(c) green revolution (d) blue revolution

15. The term protoplasm was coined by

- (a) Purkinje
(b) Robert Hooke
(c) Virchow
(d) Robert Brown

16. Which type of honeybees has high honey collection capacity?

- (a) *Apis florae* (b) *Apis mellifera*
(c) *Apis dorsata* (d) *Apis indica*

Direction (Q.Nos. 17-20) In each of the following questions, a statement of Assertion (A) is given by the corresponding statement of Reason (R). Out of the given statements, choose the correct one.

- (a) If both A and R are true and R is the correct explanation of A.
(b) If both A and R are true, but R is not the correct explanation of A.
(c) If A is true, but R is false.
(d) If A is false, but R is true.

17. Assertion (A) Circular motion is an example of uniform accelerated motion.

Reason (R) A uniform circular motion, there is no acceleration.

18. Assertion (A) Air is a mixture of gases.

Reason (R) The composition of air includes gases like N_2 , O_2 , CO_2 and water vapour.

19. Assertion (A) Chromosomes are composed of DNA and protein.

Reason (R) These are thread-like structures present in nucleus.

20. Assertion (A) Axon and dendrites are special feature of neurons.

Reason (R) They help in rapid conduction of nerve impulses.

Section B

Question Nos. 21 to 26 are very short answer type questions. Each question carries 2 marks.

21. What is manure? State two advantages of using manure.

22. A player throws a ball upwards with an initial speed of 19.6 m/s.

- What is the direction of acceleration of the ball during the upward motion?
- What are the velocity and acceleration of the ball at highest point of its motion?

23. (i) Write three differences between epithelial tissue and connective tissue.

Or

(ii) Draw the diagram of areolar tissue and label the following parts

- Reticular fibre
- Fibroblast
- Collagen fibre

24. (i) Classify each of the following as a homogeneous or heterogeneous mixture :
soda water, wood, air, soil, vinegar.

(ii) Write any two properties of suspension.

25. The average atomic mass of a sample of an element X is 16.2 u. What are the percentages of isotopes $^{16}_8X$ and $^{18}_8X$ in the sample?

Or

Give example of two atoms

- having same number of neutrons but different atomic numbers.
- having same valency but different valence electrons.

26. Observe the picture given below.



Mention any two benefits of using the given cropping pattern.

Section C

Question Nos. 27 to 33 are short answer type questions. Each question carries 3 marks.

27. Waves of higher frequencies are used for cleaning hard to reach the places. These are also used to detect and find the distance of object underwater.

- Name the type of waves.
- Mention the frequency of these waves.
- Write another important use of these waves.

28. (i) Dheeraj has been cultivating wheat crop year after next. However, he observed a steady decline in crop yield for past few years. Agriculture inspector then advised him to cultivate soybean or chickpea crop for next year before planting wheat crop.

Comment on the logic and validity of this suggestion.

Or

(ii) Crop protection management aims at reducing the kind of infestations caused by weeds, insect pests, crop diseases, etc. Explain how?

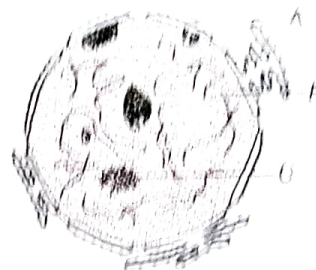
29. Explain why, the motion of a body which is moving with constant speed in a circular path is said to be accelerated.

30. (i) Distinguish between mass and weight of an object.
 (ii) Give reason, why objects with different masses take same time to fall from a fixed height.
31. (i) Differentiate between phagocytosis and exocytosis.
 (ii) What are chromosomes? List their one function.
32. (i) Many substances are said to be actively transported across the cell membrane. Elaborate how?
 (ii) Present any two reasons supporting the fact that transport across cell membrane is vital to a cell.
33. (i) An element X has a valency of 2.
 Write the chemical formula for
 (a) bromide of the element
 (b) oxide of the element
 (ii) Define formula unit mass of a substance.

Section D

Question Nos. 34 to 36 are long answer type questions. Each question carries 5 marks

34. (i) (a) Explain the three states of matter on the basis of the following properties.
 I. Intermolecular force
 II. Arrangement of molecule
 (b) Liquids generally have lower density as compared to solids but ice floats on water, why? Explain in brief.
 (c) Camphor disappears with time without leaving any solid. Justify the statement.
- Or (ii) (a) Write any three factors which affect the rate of evaporation.
 (b) What is the physical state of water at 350°C ?
 (c) What temperature in kelvin scale is equal to 30°C ?
35. (i) (a) What are mitochondria? Give its detailed structure along with a labelled diagram
 (b) State any two important functions of mitochondria.
- Or (ii) (a) Study the diagram below and name the parts marked as A, B and C. Mention the role played by part A and B in it.



(b) Write any three important functions of nucleus in a cell.

36. (i) A vehicle of 1 tonne travelling with a speed of 60 ms^{-1} notices a cow on the road 9 m ahead, applies brakes. It stops just in front of the cow.
 (a) Find out the KE of the vehicle before applying brakes.
 (b) Calculate the retarding force provided by the brakes.
 (c) How much time did it take to stop after the brakes were applied?
 (d) What is the work done by the breaking force?
- Or (ii) Establish the relationship between speed of sound, its wavelength and frequency. If velocity of sound in air is 340 ms^{-1} . Calculate
 (a) wavelength when frequency is 256 Hz
 (b) frequency when wavelength is 0.85 m.

Section E

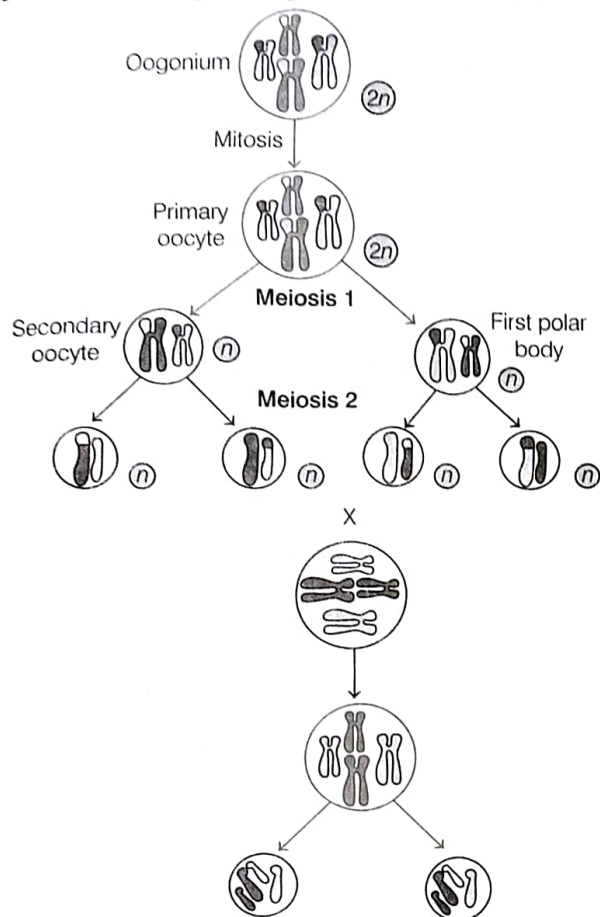
Question Nos. 37 to 39 are case/source based questions. Each question carries 4 marks.

37. The symptoms of acidity are controlled by an antacid. Commercially available antacids consist of magnesium hydroxide, sugar and flavouring agents. The hydrochloric acid in the stomach is neutralised by the magnesium hydroxide to form salt and water. The mass of salt and water formed is equal to combined mass of base and acid reacted.
- (i) Which law of chemical combination is mentioned in the above passage? Explain it by giving an example.
- (ii) What is the combined mass of acid and antacid reacted to produce 9.5 g of salt and 3.6 g of water?

Or

- (iii) If 2.0 g of sodium carbonate reacts with 10g of hydrochloric acid, it results in the formation of 3.5g of carbon dioxide and 8.5g of sodium chloride solution. Show that these results are in accordance to the above given law.

38. Observe the given figures of cell division.



- (i) Identify the type of cell division shown in the figure X.

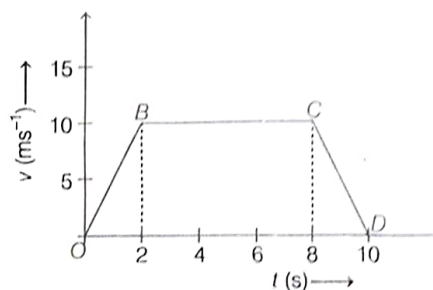
Or

- (ii) Identify the type of cell division shown in the figure Y.
 (iii) Compare the division shown in the figure X or Y.
 (iv) Name the type of cells that exhibit division shown in the figure X.

39. The distance travelled by a body is the actual length of the path covered by it, irrespective of the direction in which body travels. It is a scalar quantity.

The displacement of a body is the change in the position of the object when it moves from a given position to another position. It is equal to the length of the shortest path measured in the direction from the initial position to the final position of the object. It is a vector quantity.

- (i) In which condition, will the magnitude of the displacement be equal to the distance travelled by an object?
 (ii) The velocity versus time graph of a body in motion is shown below. What will be the displacement of the body?



- (iii) A particle starting from origin, moves 3 m North, 4 m East, 5 m South and then returns back to its initial position. What will be the displacement of the particle?

Or

- (iv) A body travels a distance of 15 m from A to B and then moves a distance of 20 m at right angle to AB. What will be the displacement of the body?

GRAMMAR

3. Complete any ten of twelve of the following tasks, as directed.

- (i) Fill in the blank by using the correct form of the word in the bracket for the given portion of a market research:

The special subscriptions of newspapers are well (illustrate), to make reading interesting for school students.

- (ii) Identify the error and write the correction in the given sentence from a life skills' book.

The road to success is not the bed of roses.

Use the given format.

Error	Correction

- (iii) Fill in the blank with the correct form of verb given in the brackets.

I'm so happy to see my plants again! They (grow) so much since I last saw them.

- (iv) Read the given statement.

They said to the guide, "We'd love to come here again next year."

Report it correctly by completing the following.

They told the guide that

- (v) Fill in the blank by choosing the correct option to complete the conclusion of a letter of placing order.

There would be no compromise the quality of items supplied.

- (a) regards (b) regard
(c) regardless (d) regarding

- (vi) Report the following by completing the sentence correctly.

"Don't try mending the trousers yourself," she warned him.

She warned him

- (vii) Complete the given opinion by filling the blank with correct option.

The experience of watching the movie left me grateful for knowing the importance of being empathetic to others.

- (a) having felt (b) feeling
(c) felt (d) feels

- (viii) The given question has an error. Select the option that correctly identifies the error and the correction. Which kind of person does something like that?

No.	Error	Correction
(a)	Which	What
(b)	kind	kinds
(c)	something	some things
(d)	that	this

- (ix) Report the following question.

She said to her sister, "Are you joining us for lunch today?"

- (x) Fill in the blank with the correct option from those given in the brackets.

Everyone is saying that Farhana's chances are bright in the upcoming tournament and she (must/may) become the youngest football player ever.

- (xi) Fill in the blank to complete the sentence in a teacher's diary by choosing the correct option.

..... student in the class submitted their assignment on time.

- (a) All (b) One
(c) Every (d) A

- (xii) Choose the correct option to fill the blank.

I looked inside the bucket and saw there was water in it, so they had to add more to use.

- (a) little (b) any
(c) few (d) least

3. Complete ANY TEN of twelve of the following tasks, as directed.

- (a) Fill in the blank by using the correct form of the word in the bracket, for the given portion of a letter.

Dear Sir

Subject: Limiting the number of vehicles

Through the columns of your esteemed newspaper, I (*highlight*) the problem of an ever-increasing number of vehicles on the roads of the cities in our country.

- (b) Read the given sentence from a recipe review article. Identify the error and supply the correction in the sentence.

Most fast food items also fall under the category of junk food because they would be harmful to your health.

Use the given format for your response.

Error	Correction

- (c) Mahima told Tanvi that the violence in the movie had scared her and that's why she looked gloomy. Report the question asked by Tanvi.

- (d) Read the dialogue between a teacher and his student. Complete the paragraph by choosing the correct option.

Teacher: Sahil, what happened to you? You look upset.

Student: I lost my Exercise Book.

The teacher asked Sahil to him as he looked upset, to which Sahil answered that he had lost his Exercise Book.

- (i) what had happened
- (ii) if anything had happened
- (iii) what has happened
- (iv) if anything has happened

- (e) Correct the following concluding paragraph of a report on a lunar mission.

The 2019 mission which was originally scheduled for launch on July 15 went aborted due to technical anomalies detected in the final hours.

- (f) Identify the error and supply correction for the given sentence from an article by an economist in a national daily.

India's strong economic fundamentals among a weak global growth outlook is a key rallying point for investors.

Use the given format for your response.

Error	Correction

- (g) Select the option that identifies the error and supplies the correction for the following line, from a story.

The older boys were working on the field, while the smaller ones were playing besides the house when the storm struck with full force.

Option no.	Error	Correction
(i)	on	in
(ii)	ones	one
(iii)	besides	near
(iv)	with	by

- (h) Complete the given narrative, by filling in the blank with the correct option.

My younger brother the wall when his friends came to call him for the match.

- (i) has been whitewashing (ii) was whitewashing
(iii) had been whitewashing (iv) was being whitewashed

- (i) Report the dialogue between Abeer and his father and complete the given narration.

Father: Have you revised all the sample papers in English?

Abeer: Yes, I am sure that I will get the highest marks in English.

Father asked Abeerall the sample papers in English. Abeer replied that he was sure that the highest marks in English.

- (j) Fill in the blank by choosing the correct option to complete the live feed on a popular news channel.

In Punjab, a thousand hands to plug a breach that flooded 3 dozen villages working on repairing the Bandh.

- (i) converge
(ii) converged
(iii) had converge
(iv) were converging

- (k) Complete the line from a popular English song, by filling in the blank with the correct option.

I followed the signs, and I

..... getting nowhere.

Oh! Why did I follow you?

Follow you? Follow you?

- (i) wind up (ii) wound up
(iii) wounded up (iv) winds up

- (l) Identify the error and supply correction, for the following note on a company's website.

Khatri & Sons Pvt. Ltd. Sonapat, Haryana

The South Point Group of Institutions offered discounts on all its courses for deserving and meritorious candidates.

Use the given format for your response.

Error	Correction

MOCK PAPER

Mathematics | Class-IX

Time Allowed : 3 Hours | Max. Marks : 80

1

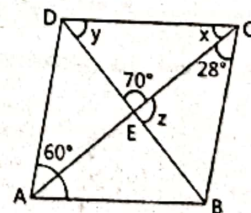
General Instructions:

- This question paper has 5 sections-A, B, C, D and E.
- Section-A has 20 MCQs carrying 1 mark each.
- Section-B has 5 questions carrying 02 marks each.
- Section-C has 6 questions carrying 03 marks each.
- Section-D has 4 questions carrying 05 marks each.
- Section-E has 3 case-based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 mark each respectively.
- All questions are compulsory. However, an internal choice in 2 questions of 5 marks, 2 questions of 3 marks and 2 question of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section-E.
- Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

SECTION-A

Section A consists of 20 questions of 1 mark each.

- Q 1. The image of point $(-3, 4)$ with respect to X-axis is:
a. $(-3, -4)$ b. $(3, 4)$
c. $(-3, 0)$ d. $(3, -4)$
- Q 2. If 'm' is a positive integer which is not a perfect square, then the value of \sqrt{m} is:
a. a natural number b. an irrational number
c. an integer d. a rational number
- Q 3. The value of $5.63 \times 5.63 + 11.26 \times 2.37 + 2.37 \times 2.37$ is:
a. 237 b. 126 c. 56 d. 64
- Q 4. If $\left(\frac{2}{5}\right)^x \left(\frac{5}{2}\right)^{2x} = \frac{625}{16}$, then x is equal to:
a. 3 b. 4 c. -4 d. 2
- Q 5. If $x^{21} - 15$ is divided by $(x+1)$, then remainder is:
a. -14 b. -16
c. -15 d. 17
- Q 6. The polynomial $px^2 + qx + rx^4 + 5$ is of type:
a. linear b. quadratic
c. cubic d. biquadratic
- Q 7. The number of zeroes in $x^2 + 4x + 4$ is:
a. 1 b. 2
c. 3 d. None of these
- Q 8. Which of the following line is perpendicular to X-axis?
a. $x + y = 2$ b. $2y + 5 = 0$
c. $3x + 1 = 0$ d. $2x = 5y$
- Q 9. The solution of linear equation $3x + 0y - 6 = 0$ is:
a. $(-2, k)$ b. $(2, k)$ c. $(k, 2)$ d. $(k, -2)$
- Q 10. The linear equation $3x + 6y = 5$ cuts the Y-axis at the point:
a. $\left(-\frac{5}{6}, 0\right)$ b. $\left(0, -\frac{5}{6}\right)$
c. $\left(\frac{5}{6}, 0\right)$ d. $\left(0, \frac{5}{6}\right)$
- Q 11. The things which are double of same thing, are:
a. equal to one another
b. unequal
c. halves of same thing
d. double of the same thing
- Q 12. Sum of all angles around a main point equals to
a. 360° b. 180° c. 270° d. 90°
- Q 13. In triangles ABC and DEF, $AB = FD$ and $\angle A = \angle D$. The two triangles will be congruent by SAS axiom if:
a. $BC = EF$ b. $AC = DE$
c. $AC = EF$ d. $BC = DE$
- Q 14. In the given figure, ABCD is a parallelogram, the values of x and y are:



- a. $30^\circ, 75^\circ$ b. $32^\circ, 78^\circ$
c. $36^\circ, 74^\circ$ d. $35^\circ, 70^\circ$

Q 15. In a histogram, the class intervals or the groups are taken along:

- Y-axis
- X-axis
- both X-axis and Y-axis
- in between X and Y-axes

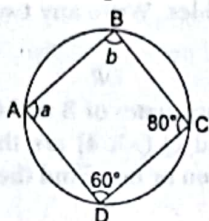
Q 16. If one angle of a parallelogram is 24 less than twice the smallest angle, then the largest angle of the parallelogram is:

- 68°
- 102°
- 112°
- 136°

Q 17. A frequency polygon is constructed by plotting frequency of the class interval and the:

- upper limit of the class
- lower limit of the class
- mid-value of the class
- any values of the class

Q 18. If four points A, B, C and D lie on a circle, then the value of $a + b$ is equal to:



- 230°
- 220°
- 225°
- 240°

In the question numbers 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option:

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

Q 19. Assertion (A): If the height of triangle is 9 cm and area is 144 cm^2 , then its base is 30 cm.

Reason (R): Area of triangle can be determined by $\Delta = \frac{1}{2} \times \text{base} \times \text{height}$.

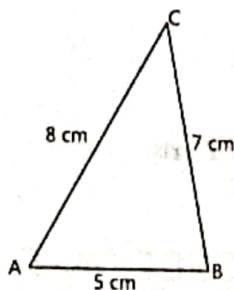
Q 20. Assertion (A): The linear equation $2x + 3y = 5$ has a unique solution.

Reason (R): A linear equation in two variables has infinitely many solutions.

SECTION-B

Section B consists of 5 questions of 2 marks each.

Q 21. In figure, find the perimeter and area of ΔABC .



OR

If the length of median of an equilateral triangle is x cm, then find its area.

Q 22. Verify that -7 and $\frac{3}{2}$ are the zeroes of the polynomial $p(x) = 2x^2 + 11x - 21$.

Q 23. Let y varies directly as x . When $y = 10$ and $x = 2$, then write a linear equation. What is value of y when $x = 6$?

Q 24. If $\sqrt{m} + \sqrt{n} - \sqrt{p} = 0$, then find the value of $(m+n-p)^2$.

Q 25. A conical tent is to accommodate 11 persons. Each person must have 4 m^2 of the space on the ground and 20 m^3 of air to breathe. Find the height of the cone.

OR

The diameter of a metallic ball is 5.6 cm. What is the mass of the ball, if the density of the metal is 7.6 g per cm^3 ?

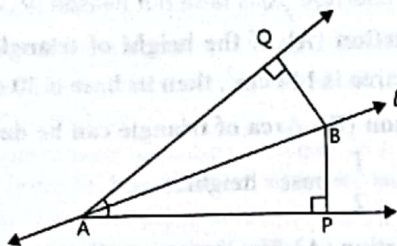
SECTION-C

Section C consists of 6 questions of 3 marks each.

Q 26. Rationalise the denominator of $\frac{\sqrt{3}}{5\sqrt{2}}$.

Q 27. Line l is the bisector of an angle A and B is any point on l . BP and BQ are perpendiculars from B to the arms of $\angle A$ (see figure). Show that:

- (i) $\triangle APB \cong \triangle AQB$.
- (ii) $BP = BQ$ or B is equidistant from the arms of $\angle A$.



Q 28. A triangular park has sides 120 m, 80 m and 50 m. A gardener has to put a fence all around it and also plant grass inside. How much area does he need to plant? Find the cost of fencing it with barbed wire at the rate of ₹ 20 per metre having space 3 m wide for a gate on one side.

[Use $\sqrt{15} = 3.87$]

Q 29. Without actual division, show that $(x^3 - 3x^2 - 13x + 15)$ is exactly divisible by $(x^2 + 2x - 3)$.

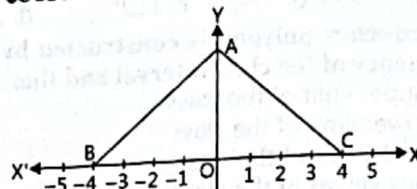
Q 30. Write the coordinates of the point:

- (i) which lies on X and Y-axes both.
- (ii) whose abscissa is 5 and ordinate is 6.
- (iii) whose ordinate is 6 and which lies on Y-axis.
- (iv) whose ordinate is 3 and abscissa is -7.

- (v) whose abscissa is 3 and which lies on X-axis
- (vi) whose abscissa is 4 and ordinate is 4.

OR

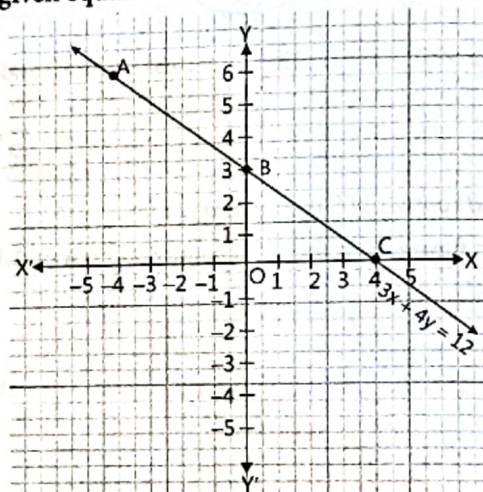
In figure, $\triangle ABC$ is an equilateral triangle with coordinates of B and C as $(-4, 0)$ and $(4, 0)$. Find the coordinates of the vertex A .



Q 31. The cost of a toy elephant is the same as the cost of 3 balls. Express the statement as a linear equation in two variables. Write any two solutions of the equation.

OR

Find the coordinates of B and C . Check whether $P(2, 1.5)$ and $Q(-3, 4)$ are the solution of the given equation or not. Find the length BC .



SECTION-D

Section D consists of 4 questions of 5 marks each.

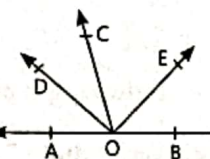
Q 32. Prove that the bisector of the angles of a parallelogram encloses a rectangle.

Q 33. A hemispherical dome open at base is made from sheet of fiber. If the diameter of hemispherical dome is 80 cm and $\frac{13}{170}$ part of sheet actually used was wasted in making the dome, then find the cost of dome at the rate of ₹ $\frac{35}{100}$ per cm^2 .

Q 34. Simplify $\left(\frac{2^{-1} \times 3^2}{2^2 \times 3^{-4}}\right)^{\frac{7}{2}} \times \left(\frac{2^{-2} \times 3^3}{2^3 \times 3^{-5}}\right)^{-\frac{5}{2}}$.

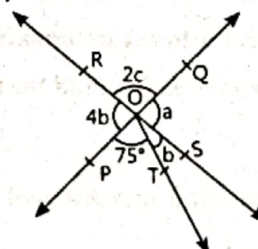
OR Prove that $\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{4}} + \dots + \frac{1}{\sqrt{8}+3} = 2$

Q 35. In the given figure, OD is the bisector of $\angle AOC$, OE is the bisector of $\angle BOC$ and $OD \perp OE$. Show that the points A , O and B are collinear.



OR

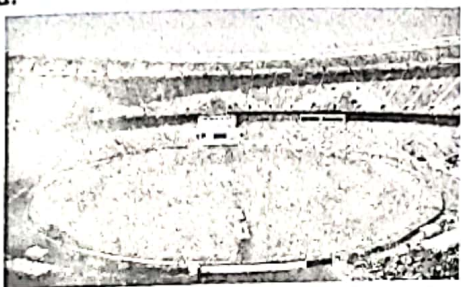
In the given figure, two straight lines PQ and R intersect each other at O . If $\angle POT = 75^\circ$, find the values of a , b and c .



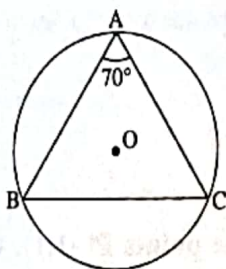
SECTION-E

Question Nos. 36 to 38 are case-based questions.

- Q 36.** Narendra Modi Stadium also known as Motera Stadium is situated in Ahmedabad, Gujarat. Currently it is the largest stadium in the world with a capacity of 1,32,000 viewers. In the field there are 2 ends known as bowler end and striker end.



Geometrically, O is the centre of a circle, $\angle BAC = 70^\circ$, which is shown in figure.



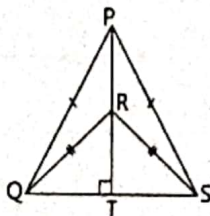
On the basis of the given information, solve the following questions.

- Find the angle subtended by the chord BC at the centre.
- Find $\angle OBC + \angle OCB$.
- If $OB = 5$ cm and $BC = 6$ cm, then find the distance from centre O to the chord BC .

OR

If point D lies on the circle between B and C , then find $\angle BDC$.

- Q 37.** Kushal is a property dealer. He has been in this business from past 12 yr. He bought a triangular shaped plot. It divides the plot into four parts which is shown in the figure.



On the basis of the given information, solve the following questions.

- If Sunil decides to sell two plots, then show that two triangles ΔPQR and ΔPSR have exact shape and size?

- In ΔQRS , $\angle RQS = 50^\circ$, then find $\angle QSR$.
- If $\angle QPS = 60^\circ$, then find $\angle QPT$.

OR

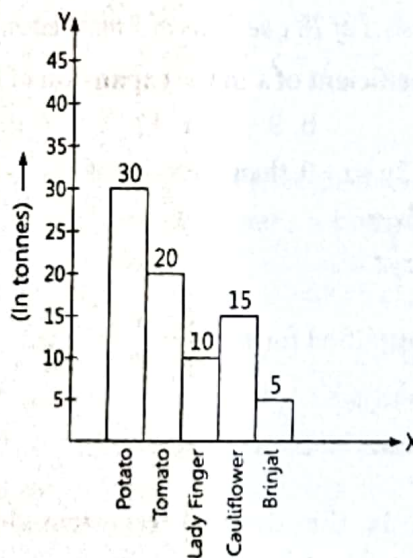
If $\angle QPT = 15^\circ$, then find $\angle QPS$.

- Q 38.** Department of Agriculture, cooperation and farmers welfare conducted an survey to determine the production of a crop in the year 2021 in the city of Amritsar. The data and graph is given below:

Table-7.4
Foodgrains production

(In '000 MT)

Crop	2014-15	2015-16	2016-17 Adv. Ext.	2017-18 (Target)	2018-19 (Target)
I. Foodgrains					
Rice	127.38	129.88	146.59	132.00	132.00
Maize	735.96	737.65	784.29	740.00	742.00
Ragi	1.91	1.93	2.12	2.20	2.10
Wheats	648.29	667.62	704.21	670.00	690.00
Rice	36.70	34.33	35.82	36.00	36.00
Gram	0.38	0.38	0.40	0.45	0.45
Pulses	53.87	59.17	67.40	61.00	62.50
Foodgrains	1604.49	1630.96	1740.83	1641.65	1665.05
II. Commercial Crops					
Potato	161.30	103.25	195.84	200.00	195.00
Vegetables	1576.45	1608.55	1633.51	1540.00	1650.00
Chilli(Green)	16.50	32.33	35.39	32.70	35.00



On the basis of the given information, solve the following questions.

- Which crop has maximum production?
- Find the total production of crops.
- What is the percentage of tomato crop in the given production?

OR

What is the percentage of Brinjal crop in the given production?

MOCK PAPER

Mathematics | Class-IX

Time Allowed : 3 Hours | Max. Marks : 80

2

General Instructions:

- This question paper has 5 sections-A, B, C, D and E.
- Section-A has 20 MCQs carrying 1 mark each.
- Section-B has 5 questions carrying 02 marks each.
- Section-C has 6 questions carrying 03 marks each.
- Section-D has 4 questions carrying 05 marks each.
- Section-E has 3 case-based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
- All questions are compulsory. However, an internal choice in 2 questions of 5 marks, 2 questions of 3 marks and 2 questions of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section-E.
- Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

SECTION-A

Section A consists of 20 questions of 1 mark each.

Q 1. The coefficient of x in the expansion of $(x+3)^3$ is:

- a. 1 b. 9 c. 18 d. 27

Q 2. If $3x - 2y + z = 0$, then the value of $27x^3 - 8y^3 + z^3$ is:

- a. $-6xyz$ b. $-18xyz$
c. $18xyz$ d. $6xyz$

Q 3. The simplified form of $\left(-\frac{1}{27}\right)^{-2/3}$ is:

- a. $\frac{1}{9}$ b. -9 c. 9 d. $-\frac{1}{9}$

Q 4. What is the decimal representation of an irrational number?

- a. Always terminating
b. Always non-terminating
c. Neither terminating nor repeating
d. Repeating

Q 5. If $49x^2 - b = \left(7x + \frac{1}{2}\right)\left(7x - \frac{1}{2}\right)$, then the value of b is:

- a. 0 b. $\frac{1}{\sqrt{2}}$ c. $\frac{1}{4}$ d. $\frac{1}{2}$

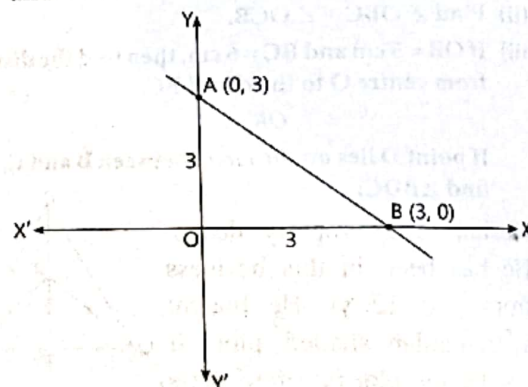
Q 6. Which of the following algebraic expression is a polynomial in variable x ?

- a. $x^2 + \frac{2}{x^2}$ b. $\sqrt{x} + 1$
c. $x^3 + \frac{3x^{3/2}}{\sqrt{x}}$ d. $x^{-2} + x^{-1} + 5$

Q 7. Which of the points $P(-1,1)$, $Q(3,-4)$, $R(1,-1)$, $S(-2,-3)$ and $T(-4,4)$ lie in the IV quadrants?

- a. P and T b. Q and R
c. only S d. P and R

Q 8. The area of triangle formed by the line $x + y = 3$ and between axes is:



- a. 4.5 sq. units b. 5 sq. units
c. 4 sq. units d. 5.3 sq. units

Q 9. The coordinates of a point satisfy the equation $x + 3y = 10$ are:

- a. (3, 1) b. (1, 3) c. (1, -3) d. (3, -1)

Q 10. The positive solutions of the equation $ax + by + c = 0$ always lie in the:

- a. 4th quadrant b. 3rd quadrant
c. 2nd quadrant d. 1st quadrant

Q 11. The things which coincide with one another, are

- a. equal b. unequal
c. half of same thing d. triple of one another

Q 12. Angles that sum up to 90° are known as:

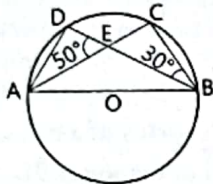
- a. vertical angles b. complementary angles
c. reflexive angles d. supplementary angles



Q 13. In a morning walk, I took 30 rounds of a park. During this period I came across person A, person B, person C and person D; 10 times, 8 times, 7 times and 4 times respectively. I want to represent this data graphically. Which of the following is the best representation?

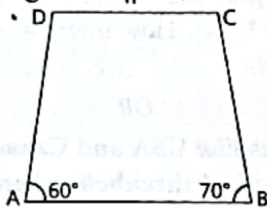
- Frequency polygon
- Bar graph
- Histogram with unequal widths
- Histogram with equal widths

Q 14. In the given figure, O is the centre of the circle, $\angle CBE = 30^\circ$ and $\angle DEA = 50^\circ$. The measure of $\angle ADB$ is:



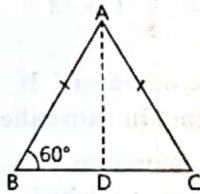
- 120°
- 110°
- 100°
- 130°

Q 15. In the given figure $AB \parallel CD$, then measure $\angle C$ is:



- 120°
- 110°
- 115°
- 118°

Q 16. In the given figure, $AB = AC$, AD is the median and it bisects $\angle A$, then $\angle BAD$ is equal to: (use $\angle A + \angle B + \angle C = 180^\circ$)



- 15°
- 30°
- 20°
- 40°

Q 17. Which of the following is not true for a parallelogram?

- Diagonals bisect each other
- Opposite sides are equal
- Opposite angles are equal
- Opposite angles are bisected by the diagonals

Q 18. In a histogram, the class intervals or the groups are taken along:

- Y-axis
- X-axis
- both X-axis and Y-axis
- in between X and Y-axes

In the question numbers 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option:

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

Q 19. Assertion (A): If the sides of a $\triangle ABC$ are $a = 5$ cm, $b = 6$ cm and $c = 7$ cm, then area of $\triangle ABC$ is $6\sqrt{6}$ cm².

Reason (R): The area of triangle having sides a , b and c with semi-perimeter s is given by

$$\Delta = \sqrt{s(s-a)(s-b)(s-c)}.$$

Q 20. Assertion (A): If $x = -1$ and $y = 2$ is a solution of the equation $3x + 2y = k$, then the value of k is 2.

Reason (R): The solution of the line will satisfy the equation of the line.

SECTION-B

Section B consists of 5 questions of 2 marks each.

Q 21. Find the value of k , if $(2, -2)$ is a solution of the equation $4x - ky = 6$. Also, find the coordinates of another point lying on its equation.

Q 22. If $x + \frac{1}{x} = 7$, then find the value of $x^3 + \frac{1}{x^3}$.

Q 23. Suppose $p(x) = x^3 - 2x^2 + x$ and $g(x) = (3 - 2x)$. Check whether $p(x)$ is a multiple of $g(x)$ or not.

Q 24. Suman has a piece of land, which is in the shape of isosceles triangle ABC. She wants her two sons to work on the land and produce different crops. She divides land in two equal parts by drawing a vertex A to the mid-point of BC.

If its perimeter is 320 m and one of longest side is of length 120 m. How much area each of them will get for his crops?

OR

Find the area of triangle whose two sides are 195 m and 180 m and the perimeter is 450 m.

Q 25. How much ice-cream can be put into a cone with base radius 3.5 cm and height 12 cm?

OR

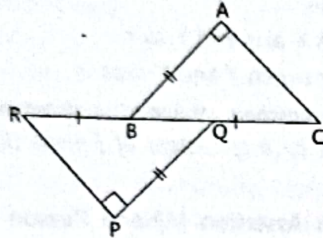
The radius of the base and height of a right circular cone are in the ratio 5 : 12. If the volume of the cone is $314\frac{2}{7}$ cm³, then find the slant height (in cm) of the cone.

SECTION-C

Section C consists of 6 questions of 3 marks each.

Q 26. The perimeter of a triangular field is 144 m and its sides are in the ratio 3 : 4 : 5. Find the length of perpendicular from the opposite vertex of side whose length is 60 m.

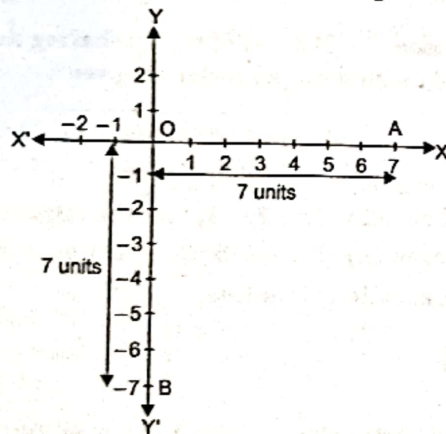
Q 27. In the given figure, $BA \perp CA$, $RP \perp QP$, $AB = PQ$ and $BR = CQ$. Prove that $PR = AC$.



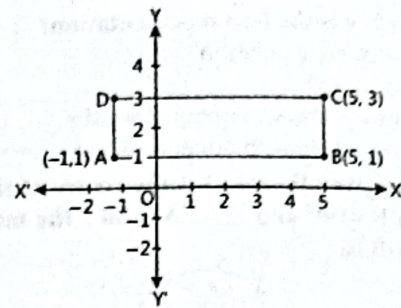
Q 28. Evaluate $\sqrt{5+2\sqrt{6}} + \sqrt{8-2\sqrt{15}}$.

Q 29. If $a^2 + b^2 + c^2 = 20$ and $a + b + c = 0$, find $ab + bc + ca$.

Q 30. A point lies on positive direction of X-axis at a distance of 7 units from the Y-axis. What are its coordinates? What will be the coordinates, if it lies on negative direction of Y-axis at a distance of 7 units from X-axis? If both points are joined, then find the area of the formed figure.



OR
In the following figure, ABCD is a rectangle.



Find:

(i) the fourth vertex of a rectangle.

(ii) the length of diagonal BD.

(iii) the area of a rectangle.

Q 31. Give the equations of two lines passing through the point (2, 14). How many more such lines are there and why?

OR

In countries like USA and Canada, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in celsius. Here is a linear equation that converts Fahrenheit to celsius.

$$F = \left(\frac{9}{5}\right)C + 32$$

(i) If the temperature is 30°C , what is the temperature in Fahrenheit?

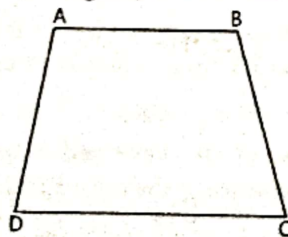
(ii) If the temperature is 95°F , what is the temperature in celsius?

(iii) If the temperature is 0°C , what is the temperature in Fahrenheit and if the temperature is 0°F , what is the temperature in celsius?

SECTION-D

Section D consists of 4 questions of 5 marks each.

Q 32. ABCD is a trapezium in which $AB \parallel CD$ and $AD = BC$ (see figure). Show that:



(i) $\angle A = \angle B$

(ii) $\angle C = \angle D$

(iii) $\triangle ABC \cong \triangle BAD$

(iv) Diagonal AC = Diagonal BD

OR

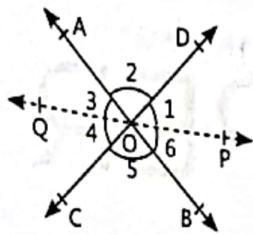
Two parallel lines l and m are intersected by a transversal p . Show that the quadrilateral formed by the bisectors of interior angles is a rectangle.

Q 33. Express $1.\overline{32} + 0.\overline{35}$ as a fraction in the simplest form.

OR

If $a = \frac{2^{x-1}}{2^{x-2}}$, $b = \frac{2^{-x}}{2^{x+1}}$ and $a - b = 0$, find the value of x .

34. In the given figure, AB and CD are straight lines and OP and OQ are respectively the bisectors

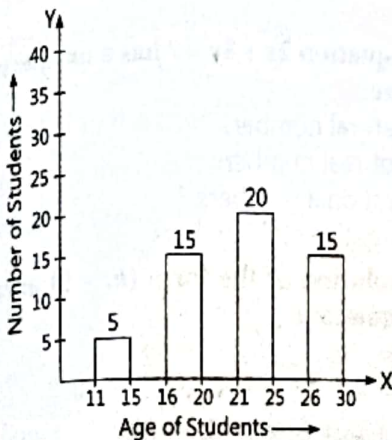
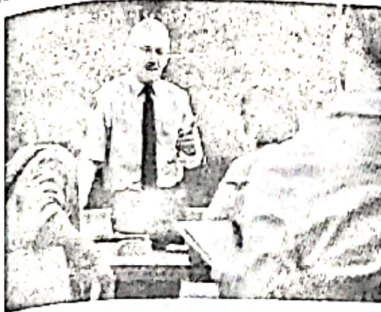


- Q 35. The volume of the two spheres are in the ratio 64 : 27. Find the difference of their surface areas, if the sum of their radii is 7 cm.

SECTION-E

Question Nos. 36 to 38 are case-based questions.

36. A teacher is a mentor of students who helps in development of skills, knowledge, temperament and attitude. For that, teacher may work with students as a small groups or one to one in a regular intervals. The data collected by the teacher of different age groups are shown below:



On the basis of the given information, solve the following questions.

- What is the data collected by the teacher of different age group of students.
- Find the range of the given data.
- Find the number of students whose age is less than 21 yr.

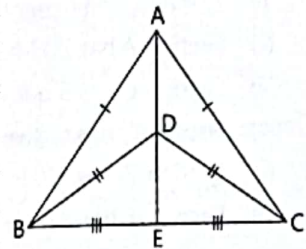
OR

Find the class mark of the interval in which most of students lie in that interval.

37. Sunil is a farmer who is having a triangular plot. As the land is limited with him, so he decided to divide his land in four parts so that he can use multiple cropping method in which fields are

growing with different seeds. The field is divided as shown below.

In this figure, $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles on the same base BC and vertices A and D are on the same side of BC. Line AD is extended to BC, which intersect at point E.



On the basis of the given information, solve the following questions.

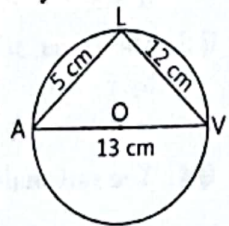
- Is it $\triangle ABD$ congruent to $\triangle ACD$?
- Two circles with same radii but different centres, then they are always congruent. Is it true?
- In $\triangle BDC$, if $\angle B + \angle D + \angle C = 180^\circ$, $\angle D = 70^\circ$, then find $\angle B$.

OR

If Sunil decides to grow multiple crop in $\triangle BDE$, then check whether $\triangle CDE$ is of exact shape and size.

- Q 38. Three boys Anshul, Vivek and Lalit are playing a game by standing on the boundary of a circle of diameter 13 cm with centre O.

Anshul throws a ball to Vivek, Vivek to Lalit and Lalit to Anshul and so on. The distance between Anshul and Lalit is 5 cm and between Vivek and Lalit is 12 cm.



On the basis of the above information, solve the following questions.

- Write the measure of $\angle ALV$.
- Find the area covered by these three persons.
- Find the length of the longest chord.

OR

If $\angle LAV = 50^\circ$, then, find $\angle AVL$.



SAMPLE QUESTION PAPER-1
Information Technology (402)
Class IX (Session 2025-26)

Time Allowed: 2 Hours

Maximum Marks: 50

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of **21 questions** in two sections – Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. **Out of the given (5 + 16 =) 21 questions, a candidate has to answer (5 + 10 =) 15 questions in the allotted (maximum) time of 2 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A – OBJECTIVE TYPE QUESTIONS (24 MARKS):**
 - i. This section has 05 questions.
 - ii. Marks allotted are mentioned against each question/part.
 - iii. There is no negative marking.
 - iv. Do as per the instructions given.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):**
 - i. This section contains 16 questions.
 - ii. A candidate has to do 10 questions.
 - iii. Do as per the instructions given.
 - iv. Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q.1	Answer any 4 out of the given 6 questions on Employability Skills (1 × 4 = 4 marks)	
i.	The word 'Communication' comes from the Latin word <i>commūnicāre</i> , meaning.' a) to talk b) to listen c) to share d) to write	1
ii.	It refers to a state of psychological tension and discomfort originating from unforeseen, difficult, confusing and challenging situations. a) Stress Management b) Time Management c) Personality Confidence d) Self Management	1



iii.	_____ businesses buy and sell a product. They also transport the product from the factory to warehouses and then finally to shops near the customers. a) Manufacturing b) Trade c) Designing d) Thinking	1
iv.	Realistic belief and trust of an individual in one's own judgement, capabilities and worthiness is _____. a) Self-Motivation b) Over-Confidence c) Self-Confidence d) Team Player	1
v.	What is the target year to achieve the SDGs globally? a) 2025 b) 2030 c) 2040 d) 2050	1
vi.	What do you type in the "To" field? a) The topic of the e-mail b) The main message of the e-mail c) Email address of the person to whom you want to send a copy of the e-mail d) Email address of the person you are sending the mail to	1
Q.2	Answer any 5 out of the given 6 questions (1 × 5 = 5 marks)	
i.	In the Home Row Approach, also called Horizontal Approach, all the _____ fingers of both the hands rest on Home Keys during the keyboard operation. a) 6 b) 4 c) 8 d) 2	1
ii.	_____ services mean performing business operations through an outside service provider. a) BPM b) MNC c) ISP d) BPO	1
iii.	_____ colour indication stands for right inputs exceeding the acceptable time frame in Rapid Typing Tutor. a) Red b) Yellow c) Green d) Orange	1

iv.	ITeS is also called _____ that cover the entire operations which exploit Information Technology for improving the efficiency of an organisation. a) web-enabled services b) webpage c) computer services d) business	1
v.	'F' and 'J' are called as _____ keys. a) Home b) Filter c) Guide d) Sticky	1
vi.	The _____ is the one which displays the result of the lessons which have already been completed. a) Lesson Editor b) Navigation Tree c) Statistics Window d) Result Window	1
Q.3 Answer any 5 out of the given 6 questions (1 × 5 = 5 marks)		
i.	Which is NOT a type of alignment in Word Processor? a) Left b) Justify c) Adjust d) Center	1
ii.	Which of the following is a way of selecting a word in a Word processor using a mouse? a) Single Click b) Double Click c) Triple Click d) Scrolling	1
iii.	Amit wants to write x2 . But when he writes this, it shows x2. Which option should he use to get 2 at its proper place? a) Superscript b) Strikethrough c) Subscript d) Change Case	1
iv.	Garima has created a document in Word Processor. She wants to give headings in bold text but her mouse is not working. Can you suggest to her the shortcut key through which she can perform this task from the keyboard? a) Ctrl+I b) Ctrl+U c) Ctrl+B d) Ctrl+D	1

v.	Sunil has prepared a project for his school in a Word Processor. In his document, he wants all the occurrences of the word “when” to be changed to “where”. Which option of the word processor will he use to complete the task? a) Change Case b) Orientation c) Find and Replace d) Find	1
vi.	Akhil is practicing to type on a notepad. By mistake, he has written the wrong spelling. Now, he wants to delete the wrongly typed word from the left side of the cursor. Which key will he use to accomplish the task? a) Delete b) Backspace c) Return d) Pause	1
Q.4	Answer any 5 out of the given 6 questions (1 × 5 = 5 marks)	
i.	What is the cell address of Fifth row and tenth column in a spreadsheet? a) J5 b) H10 c) E10 d) A6	1
ii.	After evaluating the given equation using operator precedence : $5+6*2^2$ The answer will be: a) 49 b) 29 c) 17 d) 23	1
iii.	In spreadsheet the default format of the date is: a) DD-YYYY-MM b) YYYY-DD-MM c) MM-DD-YYYY d) DD-MM-YYYY	1
iv.	_____ Handle tool is used to fill the next cells till you drag it with the next predefined value. a) Fill b) Copy c) Create d) Paste	1

v.	To see the formula of a cell. Select from Menu _____ ->Show Formula. a) File b) Edit c) View d) Window	1
vi.	Formula =H2+C\$14 is an example of _____ Referencing. a) Relative b) Absolute c) Mixed d) New	1
Q.5	Answer any 5 out of the given 6 questions (1 × 5 = 5 marks)	
i.	Which of the following is NOT an element of a presentation? a) Slide b) Text c) Database d) Images	1
ii.	What is a key characteristic of an effective presentation? a) Overloaded slides with text b) Clear and simple visuals c) Complex vocabulary d) Random slide order	1
iii.	What does a template in presentation software provide? a) Virus protection b) File compression c) Database connection d) A pre-designed slide layout and style	1
iv.	What is the purpose of a Slide Master? a) It plays audio b) It stores database queries c) It defines common layout and design for all slides d) It saves the presentation	1
v.	What happens when you press F5 in Impress? a) Opens Print Preview b) Starts the slideshow from the beginning c) Opens Help Menu d) Saves the presentation	1
vi.	Which file extension is used for saving a LibreOffice Impress presentation? a) .odp b) .pptx c) .ods d) .odt	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills ($2 \times 3 = 6$ marks)
Answer each question in 20 – 30 words.

Q.6	Give any two disadvantages of verbal communication.	2
Q.7	Write any two characteristics of Entrepreneurship.	2
Q.8	List the steps to search for information using a web browser.	2
Q.9	How can self-management help a person in their daily life?	2
Q.10	Differentiate between Non-renewable Resources and Renewable Resources.	2

Answer any 4 out of the given 6 questions in 20 – 30 words each ($2 \times 4 = 8$ marks)

Q.11	How can you differentiate between MNCs and ISPs in the IT-BPM industry?	2
Q.12	Explain in short any two important categories of keys on the Keyboard?	2
Q.13	Give two different ways of creating charts in a spreadsheet?	2
Q.14	What is the default name of the worksheet? How can it be renamed?	2
Q.15	List four views that can be used to view the slides in the presentation?	2
Q.16	List any two important basic features provided by any popular word processor?	2

Answer any 3 out of the given 5 questions in 50 – 80 words each ($4 \times 3 = 12$ marks)

Q.17	<p>ABC International School wants to send invitations to 500 parents to invite them for the annual day function. The office assistant wanted to use LibreOffice Writer to simplify the job of sending 500 invitations in a fraction of seconds.</p> <p>a) Which feature of LibreOffice Writer should the office assistant use to perform this task efficiently?</p> <p>b) Explain the role of the data source in the Mail Merge process.</p> <p>c) What are the basic steps to perform Mail Merge in LibreOffice Writer?</p> <p>d) Mention any two advantages of using Mail Merge in such situations.</p>	4
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Q.18	<table border="1"> <tr> <th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr> <tr> <td>1</td><td></td><td></td><td colspan="2">MY SHOPPING LIST</td></tr> <tr> <td>2</td><td></td><td></td><td></td><td></td></tr> <tr> <td>3</td><td>ITEMS</td><td>QUANTITY</td><td>PRICE</td><td>AMOUNT</td></tr> <tr> <td>4</td><td>JEANS</td><td>2</td><td>1500</td><td></td></tr> <tr> <td>5</td><td>T-SHIRTS</td><td>5</td><td>1000</td><td></td></tr> <tr> <td>6</td><td>TROUSERS</td><td>1</td><td>2100</td><td></td></tr> <tr> <td>7</td><td>BLAZERS</td><td>1</td><td>4000</td><td></td></tr> <tr> <td>8</td><td>CAPRI</td><td>3</td><td>1700</td><td></td></tr> <tr> <td>9</td><td></td><td></td><td></td><td></td></tr> <tr> <td>10</td><td></td><td></td><td></td><td></td></tr> </table> <p>Give the formula of the following using the above given worksheet :</p> <p>a) Calculate the amount for T-Shirt in cell D5</p> <p>b) Calculate the maximum Quantity in cell B9</p> <p>c) Calculate the minimum Price in cell C9</p> <p>d) Count the number of items in cell A9</p>		A	B	C	D	1			MY SHOPPING LIST		2					3	ITEMS	QUANTITY	PRICE	AMOUNT	4	JEANS	2	1500		5	T-SHIRTS	5	1000		6	TROUSERS	1	2100		7	BLAZERS	1	4000		8	CAPRI	3	1700		9					10					4
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Q.19	Typing ergonomics provides the logistic support for efficient and effective typewriting. They help in attaining and maintaining accuracy and speed. List any four factors important to maintain correct typing ergonomomy?	4
Q.20	List the various uses of IT in a banking system.Give any four points to support your answer.	4
Q.21	Amit has created a presentation on “Say No to Plastic” in LibreOffice Impress. Help him do the following by giving him the steps to : a) Add Custom Animation b) Add a new Slide c) Group the objects d) Add an image	4