

DAV POLICE PUBLIC SCHOOL, JHAJJAR HOLIDAY HOMEWORK





MATHEMATICS

General instructions:

- Make a separate notebook for holiday homework.
- Make an assignment on one of the given topics: Real numbers, Polynomials, Pair of linear equations in two variables, Quadratic equations, Arithmetic Progression, Coordinate Geometry, Circles, Area related to circle, Probability.
- 1. If HCF (253, 440) = 11 and LCM (253, 440) = 253 × R. Find the value of R.
- 2. Prove that $5 + 3\sqrt{2}$ is irrational.
- 3. Write the smallest number which is divisible by both 360 and 657.
- 4. If HCF of 210 and 55 is expressible in the form $210 \times 5 55x$, find the value of x.
- 5. Two numbers are in the ratio 2:3 and their LCM is 180. What is the HCF of these numbers.
- 6. Can two numbers have 15 as their HCF and 175 as their LCM? Give reasons.
- 7. In a school, the duration of a period in junior section is 40 minutes and in senior section is 1 hour. If the first bell for each section ring at 9:00 am, when will the two bells ring together again?
- 8. Two tankers contain 850 liters and 680 liters of petrol. Find the maximum capacity of a container which can measure the petrol of each tanker in the exact number of times
- 9. The length, breadth, and height of a room are 8 m 50 cm, 6 m 25 cm and 4 m 75 cm respectively. Find the length of the longest rod that can measure the dimensions of the room exactly.
- 10. In a school, there are two Sections A and B of class X. There are 48 students in Section A and 60 students in Section B. Determine the least number of books required for the library of the school so that the books can be distributed equally among all students of each Section.
- 11. Science teacher of a school decided to have maximum number of mixed sections for a team. Each section has to accommodate equal number of boys and equal number of girls. What is the maximum number of such sections if there are 372 boys and 444 girls?
- 12. Dudhnath has two vessels containing 720 ml and 405 ml of milk respectively. Milk from these containers is poured into glasses of equal capacity to their brim. Find the minimum number of glasses that can be filled.
- 13. If one zero of the polynomial $3x^2 8x + 2k + 1$ is seven times the other, then find the value of k.
- 14. Form a quadratic polynomial whose zeroes are $3 + \sqrt{2}$ and $3 \sqrt{2}$.
- 15. Find a quadratic polynomial, the sum and product of whose zeroes are $\sqrt{3}$ and $1/\sqrt{3}$
- 16. Find the zeroes of the quadratic polynomial $\sqrt{3} x^2 8x + 4\sqrt{3}$.
- 17. If the sum and difference of zeroes of quadratic polynomial are -3 and -10, respectively. Then find the difference of squares of zeroes.
- 18. Find the zeroes of the quadratic polynomial $3x^2 75$ and verify the relationship between the zeroes and the coefficients.
- 19. Solve the following pair of equations:
 - 49x + 51y = 499

51x + 49y = 501

- 20. Find the value of a and p for which the following pair of linear equations has infinite number of solutions:
 - 2x + 3y = 7;

 $\alpha x + (\alpha + \beta)y = 28$

- 21. The ratio of income of two persons is 9 : 7 and the ratio of their expenditure is 4 : 3. If each of them manages to save RS.2000 per month, then find their monthly incomes.
- 22. A father 's age is three times the sum of the ages of his two children. After 5 years his age will be two times the sum of their ages. Find the present age of the father.
- 23. The sum of the digits of a two digit number is 8 and the difference between the number and that formed by reversing the digits is 18. Find the number.
- 24. Solve the following quadratic equation for x: $4x^2 + 4bx (a^2 b^2) = 0$

- 25. Find that non-zero value of k, for which the quadratic equation $x^2 + k(2x + k 1) + 2 = 0$ has equal roots. Hence find the roots of the equation.
- 26. Three consecutive natural numbers are such that the square of the middle number exceeds the difference of the squares of the other two by 60. Find the numbers.
- 27. A passanger train takes 3 hours less for a journey of 360 km, if its speed is increased by 10km/h from its usual speed. Find its usual speed.
- 28. The difference of two natural numbers is 5 and the difference of their reciprocals is 5/14. Find the numbers.
- 29. Find the 20th term of the sequence 7, 3, -1, -5......
- 30. How many terms are there in the sequence 3, 6, 9, 12,.....,111?
- 31. Which term of the AP: 21, 18, 15,.... is -81?
- 32. Find the sum of first 24 terms of an AP, whose nth term is given by 3 + 2n.
- 33. If the sum of first 10 terms of an AP is 140 and the sum of first 16 terms is 320, then find the sum of first m terms.
- 34. Find the ratio in which y-axis divides the line segment joining the points (5, -6) and (-1, -4).
- 35. The line segment joining the points A(4, -5) and B(4, -5) is divided the point P such that AP : AB = 2 : 5 . Find the coordinates of P.
- 36. Find the ratio in which P(4, m) divides the line segment joining the points A (2, 3) and B(6, -3). Hence, find m.
- 37. If the distance of P(x,y) from A(5,1) and B(-1,5) are equal, then prove that 3x = 2y.
- 38. If A(-2, 1), B(a, 0), C(4, b) and D(1, 2) are the vertices of a parallelogram ABCD. Find the values of a and b. Hence, find lengths of its sides.
- 39. Two fair dice are rolled simultaneously. Find the probability that 5 will come up atleast once.
- 40. A box contains 90 discs, numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears a prime number less than 23.
- 41. A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green, is 2/3. Find the number of blue marbles in the jar.
- 42. The king, queen and jack of spades are removed from a deck of 52 playing cards and then remaining cards are shuffled. One card is selected from the remaining cards. Find the probability of getting (a) a spade.(b) a king.
- 43. From an external point P, tangents PA and PB are drawn to a circle with centre O. If angle PAB =50°, then find angle AOB.
- 44. Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line segment to the given circle.
- 45. Prove that the parallelogram circumscribing a circle is a rhombus.
- 46. Prove that the opposite sides of a quadrilateral circumscribing a circle subtended supplementary angles at the centre of the circle.
- 47. Prove that the lengths of tangents drawn from an external point to a circle are equal.
- 48. A chord PQ of a circle of radius 10 cm subtends an angle of 60° at the centre of a circle. Find the area of major and minor segments of the circle.
- 49. A farmer has a circular field with a radius of 30 metres. If he wants to plough a sector of angle 240°, then what fraction of the total area he ploughed. Also find the area of the portion be ploughed.
- 50. The central angles of two sectors of circles of radii 3.5 cm and 14 cm are 80° and 120° respectively. Find the areas of two sectors as well as the lengths of the corresponding arcs.

SOCIAL SCIENCE

Chapter 1: Resources and Development

1.Define 'Resource Planning'. Why is it necessary in a country like India?

- 2. Classify resources based on exhaustibility. Provide two examples for each category.
- 3. Explain the concept of 'Sustainable Development'. Why is it important?
- 4.Discuss the role of human resources in the development of a country.
- 5.What are the factors that determine the use of land resources? Explain with examples.

6.Describe the significance of soil conservation. Mention any two methods used for soil conservation.

7.What is land degradation? Discuss its causes and suggest measures to prevent it.

8.Explain the concept of 'Resource Development'. How does it contribute to economic growth?

9.Differentiate between 'Renewable' and 'Non-renewable' resources. Provide examples of each.

10.Discuss the importance of 'Resource Planning' in India. How does it address regional disparities?

Chapter 2: Forest and Wildlife Resources

1. Classify the types of forests found in India. Explain the characteristics of each type.

2.What is biodiversity? Discuss its importance in maintaining ecological balance.

3.Explain the concept of 'Joint Forest Management'. How has it been beneficial in forest conservation?

4.Discuss the reasons for deforestation. What measures can be taken to prevent it?

5.What are wildlife sanctuaries and national parks? How do they contribute to wildlife conservation?

6.Explain the significance of the 'Wildlife Protection Act, 1972'. How has it helped in conserving wildlife in India?

7.Discuss the role of forests in maintaining ecological balance. How do they support various life forms? 8.What are the threats to wildlife in India? Suggest measures to mitigate these threats.

9.Explain the concept of 'Conservation of Forests'. Why is it essential for sustainable development?

10.Discuss the importance of forest resources in the socio-economic development of India.

Chapter 1: Power Sharing

1.Define power sharing. Why is it considered a fundamental principle in a democracy?

2.Explain the prudential and moral reasons for power sharing. Provide examples to illustrate each.

3.Describe the power-sharing model in Belgium. How did it help in accommodating regional differences?

4.Discuss the impact of majoritarianism on Sri Lanka's social fabric. What were the consequences of this approach?

5. Analyze the statement: "Power sharing is the very spirit of democracy." Do you agree? Justify your answer.

Chapter 2: Federalism

1.What is federalism? Explain its key features.

2.Differentiate between 'holding together' and 'coming together' federations. Provide examples of each.

3. How does the Indian federal system accommodate diversity? Discuss with examples.

4.Explain the role of the judiciary in the federal system of India. How does it resolve disputes between different levels of government?

5.Discuss the significance of decentralization in India. What are its benefits for local governance?

• Prepare assignment on Consumer Rights

SCIENCE

CHEMISTRY

1.Write the balanced chemical equations for the following reactions and identify the type of reaction in each case.

(a) In the thermite reaction, iron (III) oxide reacts with aluminium and gives molten iron and aluminium oxide.

(b) Magnesium ribbon is burnt in an atmosphere of nitrogen gas to form solid magnesium nitride.

(c) Chlorine gas is passed in an aqueous potassium iodide solution to form potassium chloride solution and solid iodine.

(d) Ethanol is burnt in the air to form carbon dioxide and water and releases heat.

2. Write the balanced chemical equations for the following reactions and identify the type of reaction in each case.

(a) Nitrogen gas is treated with hydrogen gas in the presence of a catalyst at 773K to form ammonia gas.

- (b)Sodium hydroxide solution is treated with acetic acid to form sodium acetate and water.
- (c) Ethanol is warmed with ethanoic acid to form ethyl acetate in the presence of concentrated H2SO4.
- (d) Ethene is burnt in the presence of oxygen to form carbon dioxide and water and releases heat and light.
- 3. Identify the reducing agent in the following reactions:
 - (a) 4 NH3 + 5 O2 \rightarrow 4 NO + 6 H2O
 - (b) H2O + F2 \rightarrow HF + HOF
 - (c) Fe2O3 + 3 CO \rightarrow 2 Fe + 3 CO2
 - (d) 2 H2 + O2 \rightarrow 2 H2O
- 4. Identify the oxidising agent (oxidant) in the following reactions:
 - (a) Pb3O4 + 8 HCl \rightarrow 3 PbCl2 + Cl2 + 4 H2O
 - (b) 2 Mg + O2 \rightarrow 2 MgO
 - (c) CuSO4 + Zn \rightarrow Cu + ZnSO4
 - (d) V2O5 + 5 Ca \rightarrow 2 V + 5 CaO
 - (e) 3 Fe + 4 H2O \rightarrow Fe3O4 + 4 H2
 - (f) CuO + H2 \rightarrow Cu + H2O
- 5. Grapes hanging on the plant do not ferment, but after being plucked from the plant can be fermented. Under what conditions do these grapes ferment? Is it a chemical or a physical change?
- 6. We made the following observations during the reaction of some metals with dilute hydrochloric acid.
 - (a) Silver metal does not show any change
 - (b) The temperature of the reaction mixture rises when aluminium (AI) is added.
 - (c) The sodium metal reaction is highly explosive.
 - (d) Some gas bubbles are seen when lead (Pb) is reacted with the acid. Explain these observations giving suitable reasons.
- 7. Balance the following chemical equations and identify the type of chemical reaction.
 - (a) Mg (s) + Cl2 (g) \rightarrow MgCl2 (s)
 - (b) HgO (s) + Heat \rightarrow Hg (l) + O2 (g)
 - (c) Na (s) + S (s) \rightarrow Na2S (s)
 - (d) TICl4 (l) + Mg (s) \rightarrow Tl (s) + MgCl2 (s)
 - (e) CaO (s) + SiO2 (s) \rightarrow CaSiO3 (s)
 - (f) H2O2 (l) + UV \rightarrow H2O (l) + O2 (g)
- 8. What will be the action of the following substances on litmus paper?

Dry HCI gas

Moistened NH3 gas

Lemon juice

Carbonated soft drinks

Curd

Soap solution

9. A student prepared solutions of (i) an acid and (ii) a base in two separate beakers. She forgot to label the

solutions, and litmus paper was not available in the laboratory. Since both the solutions are colourless,

how will she distinguish between the two?

10. What are strong and weak acids? In the following list of acids, separate strong acids from weak acids.

Hydrochloric acid, citric acid, acetic acid, nitric acid, formic acid, sulphuric acid.

Biology

- 11. a) Why fish cannot survive out of water?
 - b) Define Carbon monoxide poisoning.

- c) Marble of Taj is gradually changing from white to yellow. Why?
- 12. A. Why does trachea not collapse in the absence of air?
 - B. Why there is only unidirectional flow of blood in the heart?
 - C. Draw the diagram of following
 - Stomata Nephron Flow chart of dialysis Digestive system Heart
- 13. What are the adaptations of leaf for photosynthesis? Discuss the mechanism for transport of water and minerals in plants.
- 14. a) What is double circulation?
 - b) Why is the separation of the right side and the left side of the heart useful? How does it help birds and mammals?
- 15. Discuss the mechanism, how food(carbohydrates) is synthesized during photosynthesis?
- 16. Describe various stages of heartbeat and direction of blood flow in them.
- 17. A. Define ecosystem.
 - B. Autotroph are at first level of food chain. Give reason.
 - C. In a food chain of frogs, grass, insects and snakes, assign trophic level to frogs. To which category of consumers do they belong to?
- 18. a) We do not clean ponds or lakes, but an aquarium needs to be cleaned regularly. Why?b) Why is ozone layer getting depleted at the higher levels of atmosphere? Mention one harmful effect caused by its depletion.
- In 1987, the United Nations Environment Programme forged an agreement to freeze the production of certain chemical to year 1986 level. Name the chemical and manufacturing companies in which this chemical was being used. In what way this chemical damages (A) the upper layers of atmosphere and (B) ultimately the organisms on the earth.
- 20. Explain how some harmful chemicals enter our bodies through the food chain. Why is the concentration of these harmful chemicals found to be maximum in human beings?

PHYSICS

21.Sudha finds out that the sharp image of the window pane of her science laboratory is formed at a distance of 15 cm from the lens. She now tries to focus on the building visible to her outside the window

instead of the window pane without disturbing the lens. In which direction will she move the screen to

obtain a sharp image of the building? What is the approximate focal length of this lens? 22.How are the power and focal length of a lens related? You are provided with two lenses of focal lengths

20 cm and 40 cm, respectively. Which lens will you use to obtain more convergent light? 23.Under what condition in an arrangement of two plane mirrors, incident ray and reflected ray will always

be parallel to each other, whatever may be the angle of incidence? Show the same with the help of diagram.

24.Draw a ray diagram showing the path of rays of light when it enters with oblique incidence (i) from air into water, (ii) from water into air.

25.Draw ray diagrams showing the image formation by a convex lens when an object is placed

- (a) between optical centre and focus of the lens
- (b) between focus and twice the focal length of the lens
- (c) at twice the focal length of the lens
- (d) at infinity (e) at the focus of the lens Soln:

26.A student-focussed the image of a candle flame on a white screen using a convex lens. He noted down

the position of the candle screen and the lens as under

Position of candle = 12.0 cm

Position of convex lens = 50.0 cm

Position of the screen = 88.0 cm

i) What is the focal length of the convex lens?

- ii) Where will the image be formed if he shifts the candle towards the lens at a position of 31.0 cm?
- iii) What will be the nature of the image formed if he further shifts the candle towards the lens?
- iv) Draw a ray diagram to show the formation of the image in case (iii), as said above.

27.A convex lens of focal length 20 cm can produce a magnified virtual as well as real image. Is this a correct statement? If yes, where shall the object be placed in each case for obtaining these

images?

28.Under what condition in an arrangement of two plane mirrors, incident ray and reflected ray will always

be parallel to each other, whatever may be the angle of incidence? Show the same with the help of a

diagram.

29.Identify the device used as a spherical mirror or lens in the following cases, when the image formed virtual and erect in each case.

(a) Object is placed between the device and its focus, and an image formed is enlarged and behind it.

(b) Object is placed between the focus and device, and an image formed is enlarged and on the same

side as that of the object.

(c) Object is placed between infinity and device, an image formed is diminished and between focus and

optical centre on the same side as that of the object.

(d) Object is placed between infinity and device, image formed is diminished and between pole and focus, behind it.

30.Why does a light ray incident on a rectangular glass slab immersed in any medium emerges parallel to

itself? Explain using a diagram.

(हिन्दी)

1.निम्न विषयों पर असाईमेंट फाईल तैयार करें:-सूचना, संदेश, पत्र (औपचारिक - अनौपचारिक), ई-मेल, विज्ञापन, अनुच्छेद।

2.अलंकार (यमका, अनुप्रास, श्लेष, उत्प्रेक्षा, अतिश्योक्ति, मानवीकरण) की परिभाषा उदाहरणों सहित लिखें तथा याद करें।

3.पद-परिचय अध्याय को याद करें तथा कोई 20 उदाहरण लिखें।

4.क्षितिज + कृतिका (पाठ- 1,2) अध्यायों से कुल 50 प्रश्न (आंतरिक) लिखें तथा याद करें।

5.कक्षा में करवाए गए कार्य की नोटबुक पूरी करें।

6.सूरदास के पदों से कोई पाँच शिक्षाप्रद बिंदु लिखें व याद करें।

ENGLISH

Revise all the topics covered upto now.

Write your responses to the questions listed below in your notebook, ensuring that your work is tidy.

1.What message does the story "A Letter to God" convey?

2. Why did the postmaster decide to answer Lencho's letter?

3.Describe Lencho's reaction after the hailstorm.

4. What is ironic about the ending of the story?

5. How does the story highlight the theme of faith?

6.Why did Lencho think the post office employees were "a bunch of crooks"?

7.Do you think Mrs. Pumphrey truly cared for Tricki? Justify your answer.

8. How does the story use irony to highlight the theme of overindulgence?

9.Do you think Mrs. Pumphrey truly cared for Tricki? Justify your answer.

10.In what way is the title "A Triumph of Surgery" ironic or misleading?

11.Was Dr. Herriot's decision to not tell Mrs. Pumphrey the truth ethical? Discuss.

12.What does the story reveal about human behavior through the character of Mrs. Pumphrey?

13. How does Dr. Herriot use his intelligence and understanding of animals to help Tricki?

14.Could the situation with Tricki have been avoided? If so, how?

15.Compare and contrast Mrs. Pumphrey's treatment of Tricki at home with Dr. Herriot's approach.

16.Was Dr. Herriot's decision to not tell Mrs. Pumphrey the truth ethical? Discuss.

17.What does the story reveal about human behavior through the character of Mrs. Pumphrey?

18. How does Dr. Herriot use his intelligence and understanding of animals to help Tricki?

19.Could the situation with Tricki have been avoided? If so, how?

20.What message does the poem 'Fire and Ice' convey?

21. Why does the poet believe that ice is equally destructive as fire?

22. How does the poem reflect human emotions?

23.What poetic devices are used in the poem?

24.What is the central idea of the poem "Fire and Ice"?

25.What is the significance of using "crow" and "hemlock tree" in the poem?

26.What poetic devices are used in the poem?

27.Write a letter to the editor of a national daily highlighting the problem of increasing road accidents in your city and suggesting possible solutions.

28.You are concerned about the increasing use of plastic in your locality. Write a letter to the editor of a newspaper expressing your concern and urging people to switch to alternatives.

29.You are a student troubled by the pressure of competitive exams. Write a letter to the editor expressing your views and suggesting how schools and parents can help students cope. 30. Fill in the blanks with the correct tense:

a. By the time you arrive, we......(finish) our lunch.

b. If she _____ (work) harder, she would have passed the exam.

c. I wish I _____ (know) about the meeting earlier.

Information Technology

Unit-1

1. Which of the following style can alter attributes such as text color, text size, highlighting, and emphasis of the text in LibreOffice.org writer?

(a)Page Style (b) Frame Style

(c) List Style (d) character Style

2. Which filter joins groups of pixels into a single area of one color?

(a) Mosaic (b) Relief

(c) Charcoal (d) Solaruation

3. Which of the following is the shortcut key to open the Templates dialog box?

(a) ctrl+Alt+N (b) Shift+Ctrl+N

(c) Ctrl+Alt+ T (d) Shift+Alt+T

4. The Basic attributes from the Type drop down list in Table of Contents, Index of Bibliography should be selected as

(al Bibliography (b) User-defined

(c) Table of contents (d) Alphabetical Index

5. _____ is used to apply a style to many different areas quickly and is useful for formatting scattered paragraphs, words, or other items with the same style.

6. The procedure to update any type of style (character, page, or frame styles) is the same (True/False)

7 Which filter modifies the image dramatically?

8. When you insert an image into writer using a scanner, it is unlikel to result in a high-quality image of the correct size. (True/False)

9 _____ refers to the vertical or horizontal placement of a graphic in relation to the chosen anchor point

10 _____ tab is used change/modify the tab stop characters in table of contents

11. Writer will not prompt you to confirm the delete operation in table of contents (True/False)

12. Which template is used by writer if a default template is not specified?

13. Write the steps to load a style from another document.

14. What do you mean by resizing an image?

15. List the four settings using which an image can be positioned

16. Write the steps to reset a template to default template.

17 Write down the basic attribute settings of Index/table tab in table of contents

Unit-2

1. _____ under Data menu can be used to combine information from multiple sheets into one sheet.

2. Scenarios are a tool to test _____

(a) Open-ended questions (b) Consolidation questions

(c) What if questions (d) Drop down questions

3. An _____ link will stop working only if the target is moved while a _____ link will stop working only if the start and target locations charge relative to each other.

4. Identify the option that is not available in hyperlink dialog box.

(a) internet (b) Download (c) Mail (d) New document

5. Spreadsheet software allows the user to share the workbook and place it in the _____ where several users can access.

6. Spreadsheet software can find the changes by _____ sheets.

7. A macro is a saved sequence of commands or keystrokes that are stored for later use. (True/False)

8. Macros are useful to _____ a task the same way over and over again.

9. Assertion (A): When passing arguments to a macro, the arguments are always treated as Values.

Reason(R): Macros are not useful in repeating a task the same way over and over again

(a) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(b) Bath (A) and (R) are correct but (R) is not the correct explanation of (A)

- (c) (Al la correct but (R) is incorrect.
- (d) (A) is incorrect but (R) is correct

10. The file extension of LibreOffice database is odb. (True/False)

11. Where can we find the sorting option in subtotals?

12. What is meant by cell reference?

13. Differentiate between relative and absolute hyperlink

14. How can you compare an original and edited worksheet in Openoffice Cale?

15. What is the purpose of adding comments