

Dear Students & Parents,

Greetings!!!

As we celebrate the triumph of good over evil, it is time to rejuvenate, spend quality time with loved ones, and return with a renewed spirit of curiosity.

The school will remain closed for the **Autumn Break** from **16th Oct-25th Oct 2026**. Normal classes will resume on their regular timings from **26th Oct 2026 onwards**.

Wishing you and your families a joyous, safe, and blessed Vijayadashami!

May the festival of Dussehra inspire you with the strength to overcome challenges and always choose the path of truth, righteousness, and learning.....

To keep our students constructively engaged and practiced during this short vacation, we have curated subject oriented holiday homework. These activities are designed to balance festive celebrations with creative learning.

Regards

Principal

DLSK

DEFENCE LABORATORIES SCHOOL, KANCHANBAGH, HYDERABAD

HOLIDAYS HOMEWORK- SOCIAL

CLASS X

1. Make an Inter Disciplinary project including following lessons.

- A.The making of the global world.(HISTORY)
- B.The lifeline of indian economy (GEOGRAPHY)
- C.Globalisation.(ECONOMICS)

2.MAP POINTING.

HISTORY.

Nationalism in India.

A.Congress sessions:

- a) 1920 Calcutta , b) 1920 Nagpur c) 1927 Madras session.

B.3 Satyagraha movements.

- a.Kheda b.champaran c.Ahmedabad mill workers

d Jallianwala Bagh , Dandi March

GEOGRAPHY

Agriculture

- 1. Major areas of rice and wheat .
- 2. largest or major producers state

sugarcane ,tea coffee ,rubber, cotton and jute.

3. Minerals and energy resources.

A. iron ore mines ,
Mayurbhanj ,Durg ,bailadila, Bellary, Kuder Mukh.

B. Coal mines
Raniganj ,Bokaro ,Talcher ,Neyveli

C. Oil fields
Digboi ,Naharkatai, Mumbai High ,Basins Kalol, Ankleshwar

D. Locate and labels power plants
a. Thermal Naam Roop ,Singrauli ,Ramagundam
b. Nuclear Narora ,kakrapara, Tarapur ,Kalpakkam

ENGLISH HOLIDAY HOMEWORK

CLASS : X. SUBJECT: English

- 1. Complete all the tasks as per the instructions given in the question.
- 2. Read each question carefully, understand the question and then answer it in prescribed format.
- 3. Concentrate on spellings, grammar, punctuation, sentence formation etc.
- 4. Complete the work in A4 size paper and submit on 26/10/2026.

QA. Obesity has become a global issue. The lack of physical fitness programmes and extra curriculums have created significant problems that could affect future health of youngsters. 39% of individuals around the world are overweight and 13% are obese. You are Avanthi/Anish of Ramjas School, Ranchi. You believe that efforts from government will help to turn the tide.

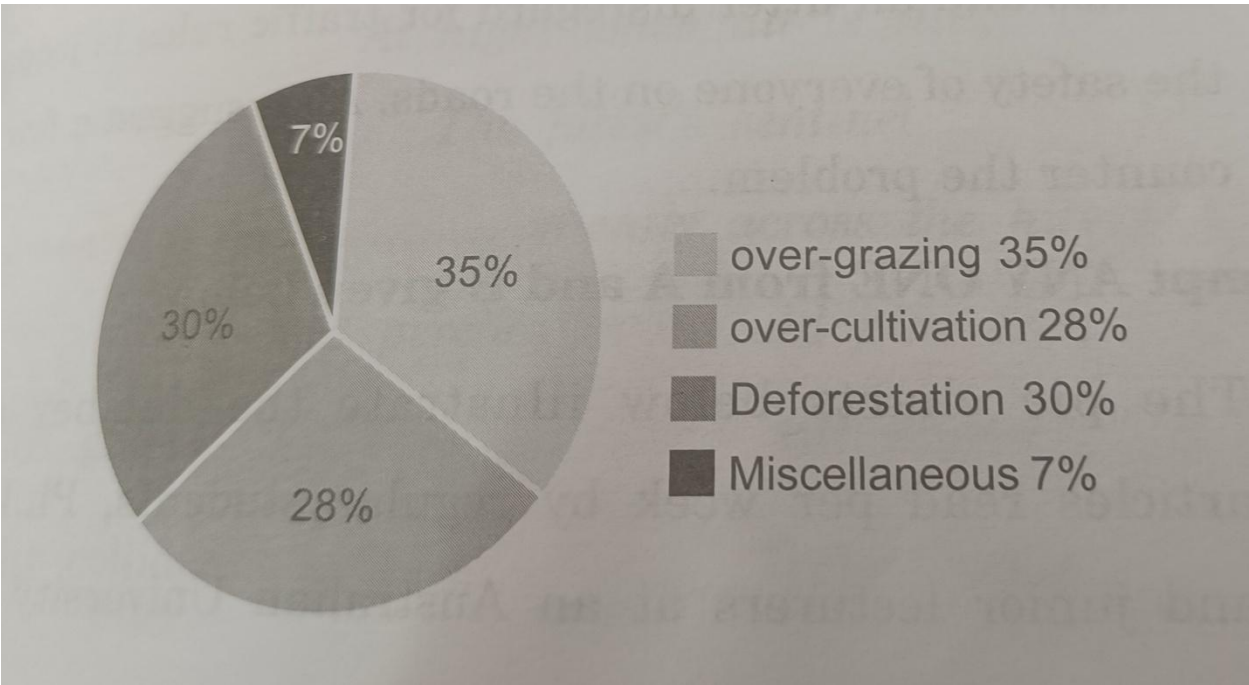
Write a letter to the Ministry of Health for implementing compulsory programmes at school level to emphasize need for a proper nutrition and fitness from a young age.

Q B) The Pros and Cons of using the internet in everyday life are numerous. The internet is like a double edged sword. Based on the information provided in the table below, write an analytical paragraph on the topic 'Advantages and Disadvantages' of the internet in not less than 150 words.

Pros and Cons of Internet

Pros	Cons
Connectivity	Data Security
Communication speed and versatile working	Social Isolation
Learning Re-defined	Addiction towards it
Transfer of data	Plagiarism and copyright

QC) The pie chart below shows the main reasons why agricultural land becomes less productive. The world population is said to touch more than 9 billion by 2050. The poor quality of land has already adversely affected 3.2 million people and growers, say the demographers and the pressure on land and it’s resources will only ride further. On the basis of the pie chart, write an analytical paragraph on the problem.



QD) Your firm had placed an order for stationary items and business cards with Excel Printers and Distributors. Not only the shipment was late but the quality of the delivered items was not up to the mark. Write a letter of complaint to the Manager, highlighting the issue and expressing your concerns. You are Pavan Khanna, Manager (procurement) GE India Pvt Ltd, 101-B, Bansal Arcade, Jaipur. Invent other necessary details.

Holiday Home Work

Class X

Science

Subject:

General Instructions:

This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.

Section A

1. During photosynthesis, what happens to carbon dioxide and water as glucose is formed?
 - A. Carbon dioxide gains hydrogen, while water loses electrons.
 - B. Carbon dioxide loses oxygen, while water gains oxygen.
 - C. Carbon dioxide is oxidized, while water is reduced.
 - D. Both carbon dioxide and water undergo reduction.
2. Lime water turns cloudy in the presence of a gas, which is a byproduct of respiration. Shown below are four setups kept in sunlight for 24 hours.

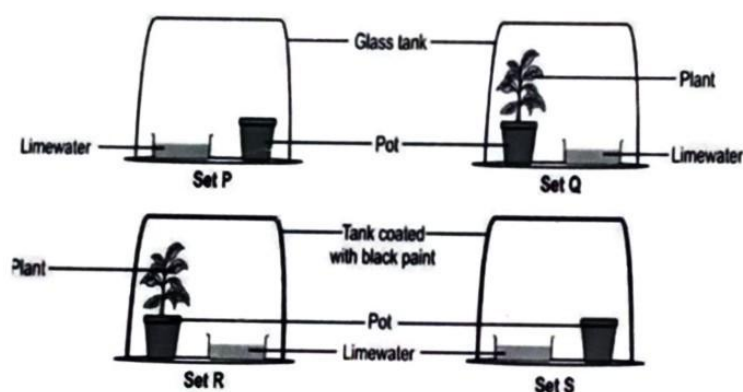
In which setup is lime water expected to be the cloudiest?

A.P

B.Q

C.R

D.S



Which of the following statement is **incorrect** concerning the experiment to show that sunlight is necessary for photosynthesis?

- A. The leaf should be destarched before conducting the experiment.
 - B. The leaf kept in darkness will show the presence of starch.
 - C. The leaf exposed to sunlight will show the presence of starch.
 - D. Starch is the end product of photosynthesis.
3. During urine formation, tubular reabsorption and secretion take place in the kidneys. Which of the following sets correctly indicates both the substances that are reabsorbed in the kidneys?
 - A. Glucose and salts
 - B. Glucose and starch
 - C. Glycogen and salts

D Glycogen and starch

4. In a controlled experiment, the anthers of a mustard plant's flowers were carefully removed in the bud stage before they matured. The bud was covered with a paper bag.

What will be the most likely result for these flowers?

- A. They will still produce seeds and fruit through self-pollination.
- B. They will attract more insects and produce larger flowers but no fruit.
- C. They will not produce any seeds or fruits.
- D. They will produce seeds and fruits that are genetically identical to the parent.

5. The Vas deferens and the Oviduct are both targets for surgical contraception (Vasectomy and Tubectomy respectively). Analysing the process of reproduction, what common biological event is prevented by blocking both these structures?

- A. The production of gametes (sperm and egg).
- B. The implantation of the fertilized egg into the uterine wall.
- C. The successful meeting and fusion of the male and the female gametes.

D The release of hormones - testosterone and estrogen.

6. A scientist applies a chemical to a normal potted plant that completely blocks the synthesis of auxins at the shoot tip. If this plant is then placed horizontally on the ground in a well-lit room, which of the following growth responses will be observed after a few days?

- (a) The shoot will curve upwards due to negative geotropism, while the roots grow downwards.
- (b) The shoot will remain horizontal and grow straight forward, while the roots curve downwards.
- (c) Both the shoot and the roots will stop growing entirely and wither immediately.
- (d) The shoot will curve downwards toward gravity, mimicking the roots.

7. A farmer treats a batch of flowering pea plants with a chemical that selectively blocks the formation of the pollen tube after pollination has successfully occurred. Which of the following processes will still take place normally in these plants?

- a) Fusion of the male gamete with the female egg cell to form a zygote.
- b) Transformation of the ovary wall into the fruit wall
- c) Transfer of pollen grains from the anther to the sticky stigma surface.
- d) Development of the ovule into a viable seed containing an embryo.

The following two questions consist of two statements –

Assertion (A) and Reason (R).

Answer these questions by selecting the appropriate option given below:

- A) Both A and R are true, and R is the correct explanation of A.
- B) Both A and R are true, and R is not the correct explanation of A.

- C) A is true but R is false.
D) A is false but R is true.

8. **Assertion (A):** The rate of breathing in aquatic organisms is much lower than in terrestrial organisms.

Reason (R): The amount of oxygen dissolved in water is less as compared to the amount of oxygen in air.

9. **Assertion (A):** Information across a synapse travels only in one direction, from the axon end of one neuron to the dendrite end of the next.

Reason (R): Neurochemicals (neurotransmitters) are released only at the axon terminals, and their receptors are present only on the dendrite membrane.

10A) Due to narrowing of the bile duct, the bile secretion from the liver to the small intestine was obstructed. How will the process of digestion be affected?

10 B) How does the length of the intestine depend on the nature of food habit in different animals?

11 A) Which parts of the brain perform certain actions for which we do not have any thinking control? What are such actions called, give two examples.

11 B) How is the information of touch in the '**sensitive plant**' controlled and coordinated?

12) What changes are observed in the uterus subsequent to implantation of the young embryo in a human female?

13) How do muscles move at the cellular level and respond when processed messages are received from the brain?

14 A) Name the plant hormone that is responsible for the **wilting of leaves**. How does its function differ fundamentally from **auxins**?

14 B) State the two main components of the **Central Nervous System (CNS)** in humans and name the bony structure that protects each of them.

15 A) How are the **alveoli** in the lungs and **villi** in the small intestine structurally designed to maximize the efficiency of exchange/absorption?

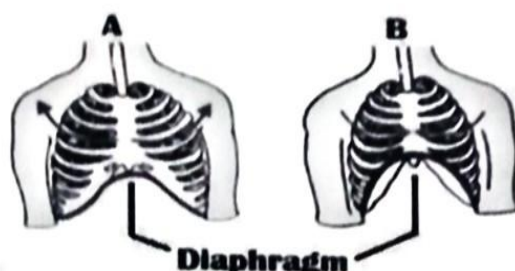
15 B) What is the role of **hydrochloric acid (HCl)** and **mucus** in the human stomach?



16)

A. Observe the structure of hearts A, B and C shown above and answer the following questions

- I. Which of the hearts depicted above is present in both birds and Mammals and how are they able to maintain their body temperature? Give reason for your answer.
 - II. Which of the hearts depicted above is present in fishes, how does circulation of blood take place in them?
- B i) How many chambers are present in the hearts of birds and mammals and how are they able to maintain their body temperature? Give reason for your answer
- ii) How many chambers are present in the heart of fishes, how does circulation of blood take place in them?
- C) Observe both the diagrams A and B. Which diagram indicates inhalation? Describe how it occurs.



- I. Describe the process of inhalation and also mention how are the lungs designed in human beings to maximise the area for exchange of gases?
- II. If diffusion were to move oxygen in our body, it is estimated that it would take 3 years for a molecule of oxygen to get to our toes from our lungs then, how is oxygen delivered to all parts of our body?

Section B

17) A student stores an aqueous solution of Iron(II) sulfate

(FeSO)₄ in four different metal containers made of Copper (Cu), Aluminum (Al), Silver (Ag), and Gold (Au). After a few days, in which container will the student observe a chemical reaction, and what type of reaction will it be?

- (a) Copper container; double displacement reaction
- (b) Aluminum container; displacement reaction
- (c) Silver container; combination reaction
- (d) Gold container; decomposition reaction

18) Rishita summarizes the chlor-alkali process in the following table.

Option	Product	Formed	Use
I	Hydrogen	At cathode	Used as a fuel
II	Chlorine	At anode	Used to make margarines
III	Sodium Hydroxide	Near cathode	To make soap

IV	Sodium Hydroxide	Near anode	To make bleaching powder
----	------------------	------------	--------------------------

Identify the options that are correctly matched.

A. I, II and III

B. I and III

C. II and IV

D. I, II, III and IV

19) When dilute hydrochloric acid reacts with granulated zinc, which gas evolves?

A. Oxygen

B. Carbon dioxide

C. Hydrogen

D. Chlorine

20) Which of the following salts contain water of crystallisation:

(i) Plaster of Paris,

(ii) Washing soda, (iii) Baking soda and (iv) Gypsum.

A. (i), (ii) and (iii)

B. (i), (iii) and (iv)

C. (ii), (iii) and (iv)

D. (i), (ii) and (iv)

21) Four distinct metal strips—Zinc (Zn), Copper (Cu), Magnesium (Mg), and Iron (Fe)—are placed into separate test tubes containing dilute hydrochloric acid. Which metal will show the fastest rate of bubble evolution, and which metal will show no reaction at all?

○ Mg will be the fastest; Fe will show no reaction

○ Zn will be the fastest; Cu will show no reaction.

○ Mg will be the fastest; Cu will show no reaction.

○ Fe will be the fastest; Zn will show no reaction.

22) A food label is given below. E304 and E307b are added to the flavoured biscuits.



Which of the following is added to food packets for the same reason?

- A. vinegar
- B. nitrogen
- C. vanilla
- D. Salt

In the food industry nitrogen is used as a/an A.
preservative.
B. oxidising agent.
C. antioxidants.
D. colouring agent.

23) Electrical wires made of aluminum

- A. corrode easily as aluminium is a very reactive metal.
- B. corrode easily because porous flaky aluminium oxide is formed.
- C. do not corrode easily as aluminium oxide forms a protective layer. do not corrode easily as aluminium is less reactive than metals like sodium, magnesium and zinc.

The following question consists of two statements – **Assertion (A)** and **Reason(R)**

Answer this question by selecting the appropriate option given below:

- A Both A and R are true, and R is the correct explanation of A.
- B Both A and R are true, and R is not the correct explanation of A.

- A is true but R is false.
- D A is false but R is true.

24) **Assertion (A):** Onion extract loses its smell, when it is added to baking soda solution whereas it retains its smell when added to lemon juice.
Reason (R): Onion acts as an olfactory indicator.

25) An aluminum strip is kept immersed in a freshly prepared **Ferrous Sulfate, $FeSO_4$** solution taken in a test tube.

1. What **color change** will you observe in the solution, and what happens to the aluminum strip?

Explain the reason behind this reaction based on the **reactivity series** 26) a. Write the electron dot structures for Chlorine (At no. 17) and Calcium (Atomic no. 20). Show the formation of Calcium Chloride by the transfer of electrons.

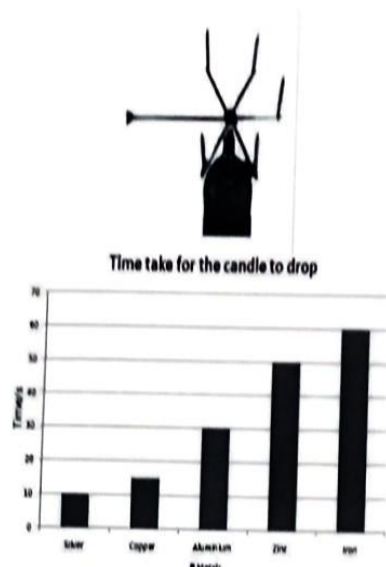
b. Identify the nature of the above compound and explain two physical properties of such compounds.

27) Give reason for the following :

- A) A solution of sports electrolyte drink conducts electricity, but coconut oil does not.
- B) Milkeness disappears when excess of carbon dioxide is passed through lime water.
- C) An iron bridge near the sea rusts much faster than an iron bridge located in a dry hilly region.

28) Aavya and Vihan are studying the properties of metals in school. They decide to design and conduct an experiment to test the relative conduction of heat by metals.

They use the apparatus (Figure) with rods of five different metals aluminium, silver, copper, iron and zinc attached to a central point. This central point is heated using a burner. The metal rods are of equal length and thickness. They observe that the candles at the end of the rods fall at different times. (Study the graph)



- A. On the basis of the graph obtained, which metal is the best conductor of heat?
- B. Gold is a better conductor of heat than aluminium but it is not as good as copper. The time taken for the candle to drop if one of the rods were made of gold would have been:
 - (i) 15 s
 - (ii) 20 s
 - (iii) 35 s
 - (iv) 10 s

The length of all the metal rods is increased by 20% without any change in the thickness

- D. Mayank tries the experiment with an apparatus similar to figure (1). He ensures the length of all metal rods is the same. However, the thickness of rods is not the same in his apparatus. Will the inference he draws on the basis of his experiment be correct? Justify your answer.

29) Refer to the dialogue between Alisha, Drishti and Bhushan in the chemistry lab. They are discussing rusting of iron and formation of ammonia gas. Who all do you agree with and why?

Alisha: The formation of ammonia by reaction of nitrogen with hydrogen is a reduction reaction.

Drishti: Both rusting of iron and formation of ammonia are redox reactions.

Bhushan: Rusting of iron is an oxidation reaction.

Section C

30. A student wants to determine the focal length of a convex lens using sunlight. Which of the following practical procedures will give the most accurate result?

- A. Move the lens close to a wall and measure the blurred circle.
- B. Hold the lens above a sheet of paper and adjust until the smallest, brightest spot is formed.
- C. Measure the thickness of the lens with a scale.
- D. Look through the lens at a distant object.

31 An electrical appliance rated 1000W is operated at 250V. What current does it draw?

- A. 0.25A
- B. 2.5A
- C. 4.0A
- D. 10A

32 **Assertion(A):** The apparent depth of a coin in water is less than its real depth.

Reason(R): Light bends away from the normal when it travels from water to air

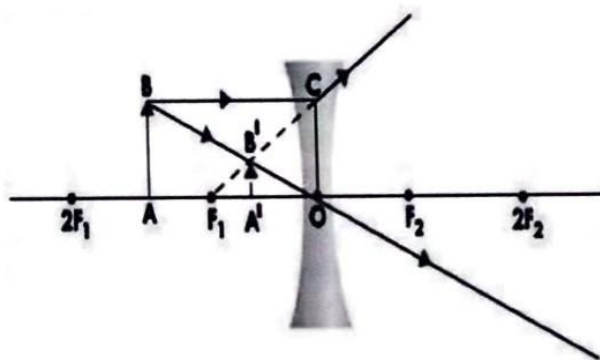
33 A.State Snell's Law of Refraction.

33 B.Define the refractive index of a material with respect to another material giving the mathematical expression.

34 A State Joule's Law of Heating.

What happens to the heat produced in a conductor if the resistance is doubled while keeping other variables constant? B. Define resistivity.

35 Justify with an example why resistivity is an intrinsic property of a material.

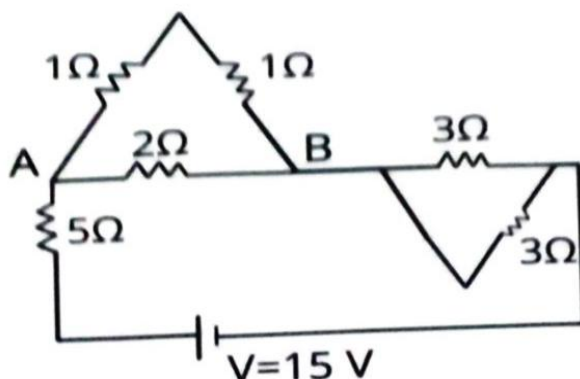


A lens forms an image that is $\frac{1}{3}$ rd the size of the object, as shown in the diagram. If the object is placed 24 cm in front of the lens, determine: A. The type of lens.

B. The image distance

C. The focal length of the lens

36) Define the power of a lens. Find the focal length of a lens which should be placed in contact with a lens of focal length 10cm so that the power of the combination is 5 Dioptre.



37.

The figure shows a circuit with a 15V battery connected to several resistors. Using the given circuit diagram:

- A. Find the total current supplied by the battery.
- B. Calculate the potential difference between points A and B.

38) As we know, in case of concave mirrors when a ray of light parallel to the principal axis strikes the mirror and after reflection it passes through the principal focus of the concave mirror. Also, a ray which is passing through the principal focus of the concave mirror after reflection goes parallel to the principal axis. And the ray of light which is passing through the centre of curvature of the concave mirror after reflection retraces the same path in backward direction. Because of converging property of concave mirrors they are used in solar furnaces to concentrate more light to produce huge amount of heat energy. They are also used in search lights, torches, head lights of vehicles so that a strong parallel beam of light will be produced. Also, in case of shaving mirrors concave mirrors are used to see larger face of the person.

While convex mirrors are used as rear view mirror in vehicles to see the traffic behind the person for safe driving. As these mirrors are curved outwards they have wider field of view. In convex mirrors the image formed is always diminished, virtual and erect.

In concave mirror, when the object is at infinity the image formed will be at focus F and which is highly diminished, point sized, real and inverted.

1) In which case of concave mirror the image formed is virtual and erect?

2) In which case the image formed is of same size as the object in case of concave mirrors?

3) Which mirrors are called as converging and diverging mirror?

4a) Write two uses of convex mirror.

4b) The radius of curvature of a spherical mirror is 20cm. what is its focal length?

- 39 a) What is meant by accommodation of the human eye?
b) What is the near point of a normal eye and what does it signify?
c) Name which type of lens is used to correct the defect in which a person cannot see distant objects clearly.
d) Draw a diagram to show how the choice of your lens in (d) helps to see distant objects clearly?

TELUGU Home work for Autumn break

Class: 10.

1. Learn నీతి పరిమళాలు పాఠం 8 పద్యాలు మరియు వాటి భావాలు.
2. Learn పారిభాషిక పదాలు, సంధులు సమాసాలు.
3. Learn కవి పరిచయాలు
4. Learn జాతీయాలు, సామెతలు from class 9th Old test book.

• कक्षा 10 हिंदी गृह कार्य

- 1-"पर्यावरण संरक्षण हमारी जिम्मेदारी" विषय पर लगभग 200 शब्दों में अनुच्छेद लिखिए।
- 2-जल संरक्षण के महत्त्व को दर्शाने वाला एक आकर्षक पोस्टर बनाकर पाँच नारे लिखिए।
- 3-अपनी कल्पना से एक प्रेरणादायक कहानी लिखिए, जिसका शीर्षक हो— "हार के बाद जीत"।
- 4-दस मुहावरों और दस लोकोक्तियों के अर्थ लिखकर उनका वाक्यों में प्रयोग कीजिए।
- 5-अपनी हिंदी की पाठ्यपुस्तक के किसी एक लेखक या कवि का चित्र लगाकर उनका जीवन-परिचय एवं प्रमुख रचनाएँ लिखिए।

निर्देश: सभी प्रश्नों को हिंदी की गृहकार्य कॉपी में साफ-सुथरी लिखावट में पूरा कीजिए तथा आवश्यकतानुसार चित्रों और रंगों का प्रयोग कीजिए।

Sanskrit

संस्कृत द्वितीयभाषा

गृहकार्य

**कक्षा 10*

1. चित्र वर्णनम्
2. पाठ्यपुस्तके निर्धारित श्लोकानं अन्वयः कुरुत।
3. पाठ्यपुस्तके निर्धारित पूर्ण पाठान् स्व संचिकायां लिखत।

Q1: Find the greatest number of 5 digits, which will give us remainder of 5, when divided by 8 and 9 respectively.

- (a) 99921 (b) 99931 (c) 99941 (d) 99951

Q2: The ratio between the LCM and HCF of 5, 15, 20 is:

- (a) 9 : 1 (b) 4 : 3 (c) 11 : 1 (d) 12 : 1

Q3: The HCF of 2472, 1284 and a third number N is 12. If their LCM is $23 \times 32 \times 5 \times 103 \times 107$, then the number N is :

- (a) $22 \times 32 \times 7$ (b) $22 \times 33 \times 103$ (c) $22 \times 32 \times 5$ (d) 24

$\times 32 \times 11$

Q4: Given that $\sqrt{2}$ is irrational, prove that $(5 + 3\sqrt{2})$ is an irrational number.

Q5: Ravish runs a book shop at school of Math, Gurgaon. He received 480 chemistry books, 192 physics books and 672 Mathematics books of class XI. He wishes to arrange these books in minimum numbers of stacks such that each stack consists of the books on only one subject and the number of books in each stack is the same.

- (a) Find the number of books in each stack.
(b) Find the Number of stacks of Mathematics books.
(c) Find the Minimum number of stacks of all the books.
(d) Find the Difference in number of stacks of Mathematics books and sum of stacks of Physics and Chemistry books.

Q6: Prove that 7^n can not end with the digit 0 for any positive integer (n).

Q7: A boat travels 30 km downstream and 18 Km upstream in 4 hours. In another journey, it travels 40 Km downstream and 24 Km upstream in 5 hours. Find the speed of the boat in still water and the speed of the stream.

Q8: If α and β are zeroes of the quadratic polynomial $x^2 - 6x + a$; find the value of 'a' if $3\alpha + 2\beta = 20$.

Q9: Write a quadratic polynomial, sum of whose zeroes is $2\sqrt{3}$ and product is 5.

Q10: If one of the zeroes of quadratic polynomial $(k - 1)x^2 + kx + 1$ is -5 then find k.

Q11: If α and β are the zeros of the polynomial $3x^2 - 4x + 7$ then find the sum of their reciprocals.

Q12: Find the zeros of the quadratic polynomial $5x^2 - 4 - 8x$ and verify the relationship between the zeros and the coefficients of the polynomial.

Q13: Find one of the common solution of $ax + by = c$ and y axis.

Q14: In ΔABC , $\angle C = 3\angle B$, $\angle C = 2(\angle A + \angle B)$ then, $\angle A$, $\angle B$, $\angle C$ are respectively.

- (a) $30^\circ, 60^\circ, 90^\circ$ (b) $20^\circ, 40^\circ, 120^\circ$ (c) $45^\circ, 45^\circ, 90^\circ$ (d) $110^\circ, 40^\circ, 50^\circ$

Q15: The sum of the digits of a two-digit number is 11. If the digits are interchanged, the resulting number is 27 less than the original number. Find the original number using concept of a pair of linear equations.

Q16: Check whether the graph of the pair of linear equations $x + 2y - 4 = 0$ and $2x + 4y - 12 = 0$ is consistent or inconsistent. Find the solution, if exists.

Q17: Solve for x and y using elimination method:

$$x - = 3 \text{ and } - =$$

Q18: Solve for x and y :

$$2x + 3y = 17$$

$$2x + 2 - 3y + 1 = 5$$

Q19: The p th term of an AP is q and q th term of an AP is p . Its r th term is

- (a) $p + q + r$ (b) $p - q - r$ (c) $p + q - r$ (d) $p - q + r$

Q20: If the first, second and last term of an AP are a , b and $2a$ respectively, its sum is

- (a) (b) (c) (d) none of these

these

Q21: If the sum of n terms of an AP is $S_n = 3n^2 + 5n$, then find the common difference of the AP.

Q22: The sum of four consecutive terms of an AP is 32 and the ratio of their product of first and last terms to the product of two middle terms is 7:15. Find the terms of the AP.

Q23: 150 workers were engaged to finish a piece of work in certain number of days. Four workers dropped the second day; four more workers dropped the third day and so on. It takes 8 more days to finish the work now. Find the number of days in which the work was completed.

Q24: If -5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and the quadratic equation $p(x^2 + x) + k = 0$ has equal roots find the value of k .

Q25: Find k if the difference of roots of the quadratic equation $x^2 - 5x + (3k - 3) = 0$ is 11.

Q26: Solve for x : $4x^2 + 4bx - (a^2 - b^2) = 0$.

Q27: A thief runs with a uniform speed of 100 m/minutes. After one minute a policeman runs after the thief to catch him. He goes with a speed of 10 m/minute in the first minute and increases his speed by 10 m/minute every succeeding minute. After how many minutes the policemen will catch the thief?

Q28: State and prove the following: a) Basic proportionality theorem (BPT) b) converse of BPT

Q29: In the following figure, $XY \parallel QR$ and $\angle X = 60^\circ$, then find the relation between XY and QR .

Q30: In a right triangle ABC , in which $\angle C = 90^\circ$ and $CD \perp AB$. If $BC = a$, $CA = b$,

Q31: An aeroplane leaves an airport and flies due west at a speed of 2100 km/hr. At the same time, another aeroplane leaves the same place at airport and flies due south at a speed of 2000 km/hr. How far apart will be the two planes after 1 hour?

Q32: If $R(5,6)$ is the midpoint of the line segment AB joining the points $A(6,5)$ and $B(4, y)$ then y equals

- (a) 5 (b) 7 (c) 12 (d) 6

Q33: Point P divides the line segment joining the points $A(2,1)$ and $B(5,-8)$ such that $AP : AB = 1 : 3$. If P lies on the line $2x + y + k = 0$, find the value of k .

Q34: Given two fixed points $P(-3, 4)$ and $Q(5, -2)$.; Find the coordinates of points A and B in PQ ; such that $5 PA = 3 PQ$ and $3PB = 2 PQ$.

Q35: 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 the lengths of its sides.

Q36: If $\cos \theta + \sin \theta = \sqrt{2} \cos \theta$, show that $\cos \theta - \sin \theta = \sqrt{2} \sin \theta$.

Q37: Evaluate: $4 - \sin^2 \theta$

Q38: Prove that: $2 (\cos^2 \theta + \sin^2 \theta) - 3 (\sin^2 \theta + \cos^2 \theta) + 1 = 0$.

Q39: In $\triangle ABC$ right angled at B , $BC = 7$ cm and $AC - AB = 1$ cm. Find the value of $\cos A + \sin A$.

Q40: Find A and B , if $\sin(A + 2B) = \frac{\sqrt{3}}{2}$ and $\cos(A + B) = \frac{1}{2}$.

Q41. The angle of elevation of a tower's top from a point $28\sqrt{3}$ m away has $\tan \theta = \frac{1}{\sqrt{3}}$.

Find the height of the tower.

Q42. In figure, AB is a 6 m high pole and CD is a ladder inclined at an angle of 60° to the horizontal and reaches up to a point D of pole. If $AD = 2.54$ m, find the length of the ladder.

(use $\sqrt{3} = 1.73$)

Q43. From the top of a 25 m high cliff, the angle of elevation of a tower is found to be equal to the angle of depression of the foot of the tower. Find height of the tower.

Q44. The tops of two poles of height 16 m and 12 m are connected by a wire, the wire makes angle of 30° with the horizontal, find length of wire.

Q45. A man standing on the deck of a ship, which is 10 m above water level, observes the angle of elevation of the top of a hill as 60° and the angle of depression

of the base of hill as 30° . Find the distance of the hill from the ship and the height of the hill.

Q46. From an aeroplane vertically above a straight horizontal plane, the angles of depression of two consecutive kilometres stones on the opposite sides of the aeroplane are found to be α and β . Show that the height of the aeroplane is $\frac{\tan\alpha\tan\beta}{\tan\alpha+\tan\beta}$.

Q47. In fig., QR is a common tangent to the given circles, touching externally at the point T. The tangent at T meet QR at P. If $PT = 3.8$ cm, find the length of QR.

Q48. From an external point P, tangents PA and PB are drawn to a circle with centre O. If $\angle PAB = 50^\circ$, then find $\angle AOB$.

Q49. In figure, PQ is a tangent at a point C to a circle with centre O. If AB is a diameter and $\angle CAB = 30^\circ$, find $\angle PCA$.

Q50. In fig., if $AD = 15$ cm, $CF = 12$ cm and $BE = 7$ cm, then find the perimeter of the triangle ABC.