

BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA

Ek Bharat Shreshtha Bharat

Inter-Disciplinary Project

Class – X

Mineral Resources of India



NOTE:

WORK IS TO BE SUBMITTED BETWEEN JULY 13, 2023 TO JULY 17, 2023.

KINDLY ENSURE TIMELY SUBMISSION.

1. Globalization has enabled some large Indian companies to emerge as multinational themselves! Every MNC have the goal to attract consumer across the world. Design a LOGO with a tagline of your own company and give your customer a reason to follow you. Instructions:

- design it on A4 size sheet.
- It can be digital or manual. (English, S.St)

2. Odisha has great mineral wealth. Which kind of MNCs would like to invest in Odisha.

What kind of minerals they can use as raw material which are available in Odisha?

Write about the location (district) and composition of these minerals (Any of the 3 languages).(Sci)

3. भुवनेश्वर में शुभश्री स्टील बरतन भंडार की तरफ से तीन दिन के लिए प्रदर्शनी (एग्जीबिशन) का आयोजन किया जा रहा है। इससे संबंधित सचित्र विज्ञापन A4 सीट पर तैयार करें। (Hindi)

4. Draw the LOGO of any MNC of Odisha on Cartesian plane. Write the coordinates of its vertices and also draw it's mirror image w.r.t X axis on A4 size Graph sheet. (math)

5. ਉੜੀਸਾ ਦਸਤਕਾਰੀ ਦੇ ਲਈ ਬੜਾ ਮਸ਼ਹੂਰ ਹੈ। ਉੜੀਸਾ ਦੀ ਅਜਿਹੀ ਕੋਈ ਇੱਕ ਮਸ਼ਹੂਰ ਵਸਤੂ ਘਰ ਵਿੱਚ ਪਏ ਫ਼ਾਲਤੂ ਸਮਾਨ ਦੀ ਵਰਤੋਂ ਕਰਦੇ ਹੋਏ ਬਣਾਉ, ਜਿਨ੍ਹਾਂ ਦੇ ਨਿਰਮਾਣ ਕਰਕੇ ਉੜੀਸਾ ਦੀ ਬਹੁ ਰਾਸ਼ਟਰੀ ਕੰਪਨੀ ਨੇ ਵਿਸ਼ਵੀਕਰਨ ਵਿੱਚ ਵਾਧਾ ਕੀਤਾ ਹੋਵੇ।

INSTRUCTIONS:

Dear students

You are at liberty to use your creativity in the presentation of your holidays homework. You can make video clip, audio clip, Ppt, model, rap song , story, picture presentation, infographics, posters, drama, scene creation , magazine, folders, brochure or any other form. You are also free to submit. your holiday homework individually or in group of two or three.

SCIENCE: QUESTION BANK

SECTION – A

(PHYSICS)

MCQ

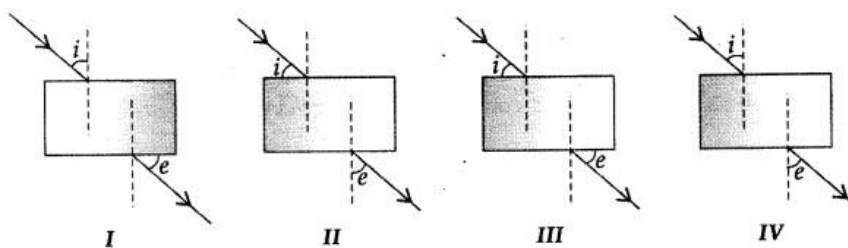
1. Two big mirrors A and B are fitted side by side on a wall. A man is standing at such a distance from the wall that he can see the erect image of his face in both the mirrors. When the man starts walking towards the mirrors, he finds that the size of his face in mirror A goes on increasing but that in mirror B remains the same:

- (a) Mirror A is concave and mirror B is convex
- (b) Mirror A is plane and mirror B is concave
- (c) Mirror A is concave and mirror B is plane
- (d) Mirror A is convex and mirror B is concave

2. Magnifying power of a concave lens is

- (a) always > 1
- (b) always < 1
- (c) always $= 1$
- (d) can have any value

3. A student does the experiment on tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. He can get a correct measure of the angle of incidence and the angle of emergence by following the labelling indicated in figure:

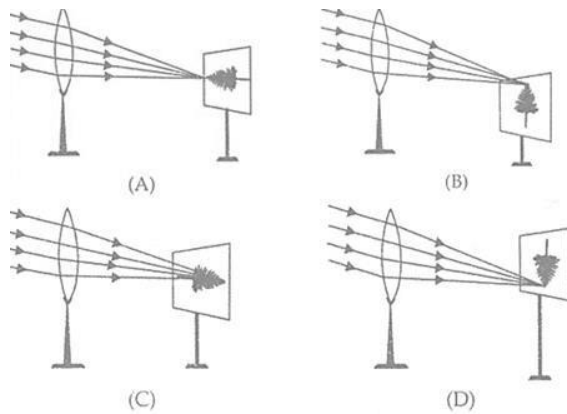


- (a) I
- (b) II
- (c) III
- (d) IV

4. An object is placed at 100 mm in front of a concave mirror which produces an upright image (erect image). The radius of curvature of the mirror is:

- (a) Less than 100 mm
- (b) Between 100 mm and 200 mm
- (c) Exactly 200 mm
- (d) More than 200 mm

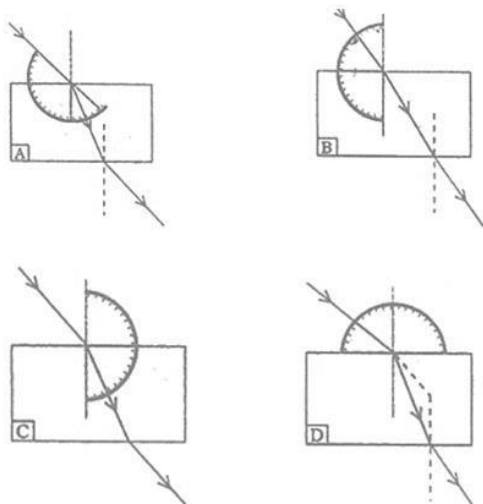
5. While performing an experiment on determination of focal length of a convex lens, four students obtained the image of the same distant tree on the screen as follows:



Which diagram shows the formation of image correctly?

- (a) A (b) B (c) C (d) D

6. A student traces the path of a ray of light passing through a rectangular slab.



For measuring the angle of incidence, he must position the protractor in the manner shown in the figure:

- (a) A (b) B (c) C (d) D

7. A concave mirror of focal length 20 cm forms an image having twice the size of object. For the virtual position of object, the position of object will be at

- (a) 25 cm (b) 40 cm (c) 10 cm (d) At infinity

8. If a man's face is 25 cm in front of concave shaving mirror producing erect image 1.5 times the size of face, focal length of the mirror would be

- (a) 75 cm (b) 25 cm (c) 15 cm (d) 60 cm

9. The refractive index of water is 1.33. The speed of light in water will be

- (a) 1.33×10^8 m/s (b) 3×10^8 m/s

(c) 2.26×10^8 m/s (d) 2.66×10^8 m/s

10. In torches, search lights and headlights of vehicles the bulb is placed :

- (a) between the pole and the focus of the reflector
- (b) very near to the focus of the reflector
- (c) between the focus and centre of curvature of the reflector
- (d) at the centre of curvature of the reflector

CASE STUDY

I) We can see when the pencil immersed in water it appears like bent at the water air interface. Also, the letters appears to be raised when we will see that letters through a glass slab placed over it. If the media used are different that means the bending of light is different in different media. And hence we can say that the light does not travel along a straight line path through different media. According to the velocity of light in that medium the bending of light takes place. Thus, we can say the phenomenon in which light ray bends or changes its direction when traveling from one medium to other is called as refraction of light. And also we can observed that if the ray of light is traveling from rarer medium to denser medium it bends towards the normal whereas when the ray of light travels from denser medium to rarer medium it bends away from the normal. And the extent of bending of light in a particular medium depends on the refractive index of the medium mostly. More the refractive index more is the bending or denser is the medium and less will be the velocity of light in that medium.

If less is the refractive index then less will be the bending or medium is rarer and velocity of light will be more in that medium. Like the refractive index of air is found to be 1.0003 and that of water is found to be 1.33. And hence water is more denser than air, air is rarer medium as compared to water. Thus, velocity of light in air medium is greater than velocity of light in water medium. The absolute refractive index of the medium is given by

Absolute Refractive index= (speed of light in air)/(speed of light in medium) = c/v

Thus, for different media refractive index is different and accordingly the velocity of light is also different.

1) If the refractive indices of glass and ice are 1.52 and 1.31 respectively. Then in which medium the velocity of light is more? What it's value?

(Velocity of light in air= 3×10^8 m/s)

2) How you can define rarer and denser medium on the basis of optical density?

3) If the Refractive index of diamond is found to be highest i.e. 2.42, then what it indicates?

4) What will happen if we took a glass filled with kerosene instead of water? What would be the observations?

II) We have, the object distance is the distance of the object from the pole of the mirror. And we always know that object is placed in front of mirror that means on left side and hence object distance u is always taken as negative. The distance of the image from the pole of the mirror is taken as image distance. The image distance may be positive or negative on the basis of nature of image formed. And the distance of principal focus from the pole is called as focal length of the mirror. Thus, the relationship between the object distance u , image distance v and focal length f is given by mirror formula.

Thus,

Mirror formula:

$$1/v + 1/u = 1/f$$

And magnification in case of mirror gives the extent to which the image is magnified as compared to object size. Magnification is given by the ratio of height of image (h') to the height of object (h).

Thus, magnification = (height of image)/(height of object)

Thus, $m = h'/h$

Also, in terms of object distance and image distance magnification is given by,

Magnification $m = h'/h = -v/u$

As we know that, image height is positive if the image formed is virtual while height of image is negative for real images.

Similarly in case of lenses, lens formula is given by

$$1/v - 1/u = 1/f$$

And magnification in case of lenses is given by

Magnification $m = h'/h = v/u$

The power of lens depends on the focal length of the lens and it is the ability of the lens to diverge or converge the number of rays incident on it. Also, power of lens is defined as the reciprocal of focal length of the lens.

Thus, $P = 1/f$

- 1) If the focal length of the lens is measured in meter what will be the unit of power of lens?
- 2) What is the sign of power of convex and concave lens?
- 3) If the lenses placed in contact of powers P_1, P_2, P_3, P_4 are used then what is the net power of lens system?
- 4) If the magnification produced is negative and positive in case of mirrors then what about the nature of images formed there?

PRACTICAL BASED QUESTIONS

I) (a) The linear magnification produced by a spherical mirror is +3. Analyse this value and state the (i) type of mirror and (ii) position of the object with respect to the pole of the mirror. Draw a ray diagram to show the formation of image in this case.

(b) Rishi went to a palmist to show his palm. The palmist used a special lens for this purpose.

(i) State the nature of the lens and reason for its use.

(ii) Where should the palmist place/hold the lens so as to have a real and magnified image of an object?

(iii) If the focal length of this lens is 10 cm, the lens is held at a distance of 5 cm from the palm, use lens formula to find the position and size of the image.

II) Student has focused the image of a candle flame on a white screen using a concave mirror. The situation is a given below:

Length of the flame = 1.5 cm

Focal length of the mirror = 12 cm

Distance of flame from the mirror = 18 cm

If the flame is perpendicular to the principal axis of the mirror, then calculate the following:

(a) Distance of the image from the mirror

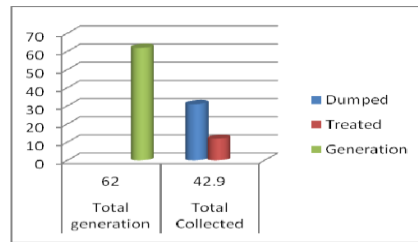
(b) Length of the image

If the distance between the mirror and the flame is reduced to 10 cm, then what would be observed on the screen? Draw ray diagram to justify your answer from this situation.

SECTION – B

(BIOLOGY)

MCQ



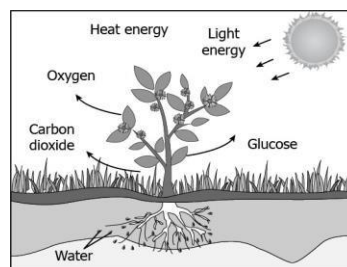
1. The given graph shows the amount of waste generated, dumped and treated in percentage. Identify the reason of low success rate of waste management process.

- only 15% of urban India's waste is processed
- less than 60% of waste is collected from households
- more than 60% of waste is collected from households
- both a and b

2. A student sets up an experiment to study the importance of nutrition in plants. The student takes 2 pots, pot 1 and pot 2 each with the same healthy plant. Both the pots were placed in the garden and watered properly. Pot 1 was kept as such, while pot 2 was kept in an air tight glass box with caustic soda. Caustic soda absorbs carbon dioxide present in the surrounding. After 2 days, the student observes that the plant kept in the garden is healthy while the plant placed in container shed leaves and droops. What is the likely reason for this observation?

- lack of nutrients in the soil
- absence of oxygen for survival
- inability to perform photosynthesis
- absorption of light by caustic soda restricting growth

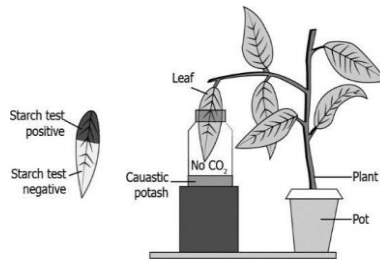
3. The image shows the process of making food by a plant.



Which statement can be concluded from the image?

- plants absorb CO₂ from air and H₂O from the soil as raw materials and convert them into glucose
- plants absorb CO₂ from the soil and H₂O from air as raw materials and convert them into glucose
- plants absorb O₂ from air and glucose from the soil as raw materials and convert them into light energy
- plants absorb O₂ from air and minerals from the soil as raw materials and convert them into heat energy

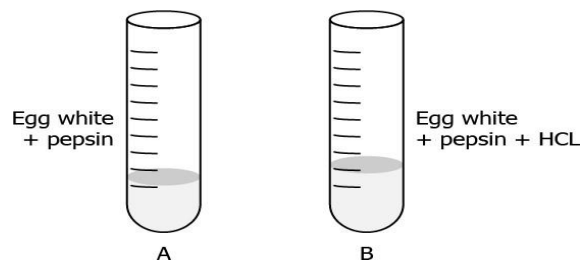
4. A student sets up an experiment to study the photosynthesis in plants. The student de-starched a potted plant by keeping it in a dark room for 3 days. Half of the portion of de-starched leaf was placed in a bottle containing caustic potash (absorbs CO₂) as shown.



The student then places the plant in light and tests the leaf after 5 hours for the presence of starch. The portions inside the bottle shows negative starch test by reflecting no change in colour when react with iodine, however, other upper portions of the leaf gave positive starch test showing blue-black colour with iodine. What can be evaluated from this experiment?

- carbon dioxide is directly linked with the colour of leaf
- carbon dioxide is necessary for preparing carbohydrate
- lack of carbon dioxide increases amount of starch in plant
- lack of carbon dioxide slows the process of photosynthesis

5.



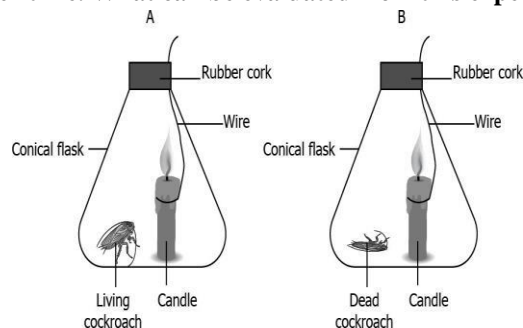
A student sets up an experiment to study the role of enzymes in digestion of food.

In which test tube, the digestion of protein will occur?

- Test tube A as pepsin will breakdown into simple molecules.
- Test tube B as HCl will breakdown protein into simple molecules.
- Test tubes A as pepsin will breakdown protein into simple molecules.
- Test tube B as HCl will activate pepsin for breakdown of protein into simple molecules.

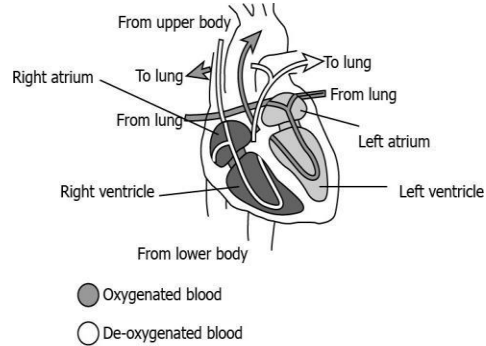
6. A student setup an experiment to study the human respiratory system. In the experiment, the student places candle and a living cockroach in the flask A, while a candle and a dead cockroach in flask B. The burning of candle needs oxygen.

After 10 minutes, the student observes that the candle in flask A extinguish faster while candle in flask B keeps burning for a longer time. What can be evaluated from this experiment?



- candle produces high amount of carbon dioxide
- living beings consumes oxygen during respiration
- burning of candle decreases the life span of cockroach
- water vapours produced by living beings prevents burning of candle

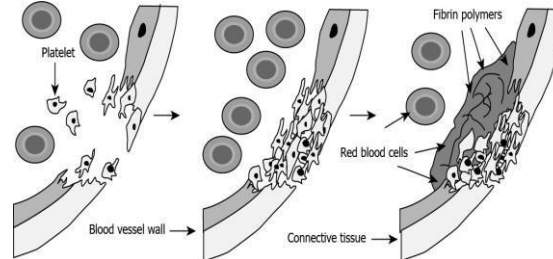
7. The image shows oxygenated and de-oxygenated blood in the human heart.



What is the direction of deoxygenated blood from right atrium of the heart?

- a. towards the lungs
- b. towards the lower body
- c. towards the upper body
- d. towards the left atrium of heart

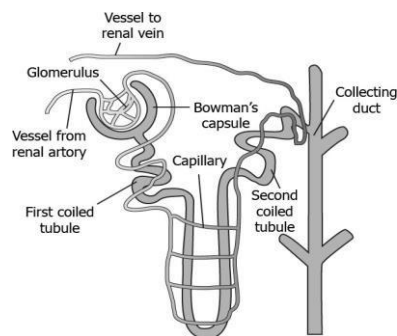
8. The image shows the healing of a wound.



Based on the image, what explains the process?

- a. platelets form clot by plugging the site of injury
- b. platelets uses component of broken vessel to form clot
- c. red blood cells divide and replace the broken vessel at the site of injury
- d. red blood cells and platelets migrate to site of injury and secrete substance that forms new vessel

9. The image shows the structure of a nephron.



Nephron is a unit of filtration in kidneys that filters waste material. It selectively reabsorbs or excretes water with the help of capillaries that surround it. What is the likely benefit of this?

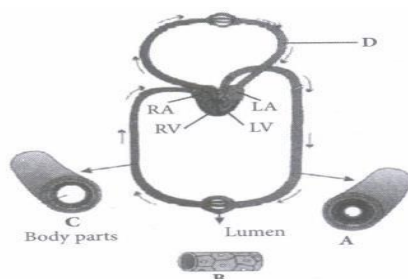
- a. reabsorption
- b. secretion
- c. filtering toxic substances
- d. none of the above .

10. Which statement shows interaction of an abiotic component with a biotic component in an ecosystem?

- a. A grasshopper feeding on a leaf.
- b. Rainwater running down into the lake.
- c. An earthworm making a burrow in the soil.
- d. A mouse fighting with another mouse for food

CASE STUDY

I) Double circulation is a type of circulating system in which the blood passes through the heart twice before completing a full circuit of the body. Blood is pumped from the heart to the lungs and returns to the heart before being distributed to other organs and tissues of the body. The figure shows blood circulation in humans with labels A to D. Select the correct pathway followed by double circulation in human beings.



II) Rishi experienced muscular cramps during the training session for his upcoming football match. Mr. Sen, his coach advised him on a schedule of some aerobic exercises to overcome his problem of muscular cramps. Rishi followed his coach's advice and did not face the problem of muscular cramps again during his match. Which life process is depicted by the above passage?

Lack of oxygen in muscles often leads to cramps due to

Why there is an increase in lactic acid concentration in the blood at the beginning of the exercise?

What else can be done for quick relief from muscular cramps ?

PRACTICAL BASED QUESTIONS

I) A Digestive System Simulation

FOOD TUBE: Lay out two parallel lines of tape on the floor, 3' apart and long enough for half the class to stand shoulder to shoulder on one side of the parallel lines.

FOOD PARTICLE: The food particle consists of M&M's placed in small zip-lock bags. These are placed in wadded newspapers in small paper sacks. Place the small sacks in larger sacks with added newspaper. Place all sacks and add newspaper until the large plastic bag is full. This bag is then taped or tied closed to complete the food particle.

Action:

Peristaltic Movement: Put the food particle to be eaten at one end of the food tube and a large trash can at the other. Have students line up on both sides, facing each other, squeeze the food particle the length of the food tube.

Digestion: Label and/ or instruct the players. As the food comes to a student they should narrate what they are doing and why. Teeth - tear food apart (break plastic bag)

Saliva - use spray bottles to moisten food particles

Stomach - tear small bags apart

Pancreatic juices - spray food

Small Intestine - absorbs food, find bags of candy and pass to blood (the teacher can play the role of the blood)

Large Intestine - reabsorbs water, sponge up water on the floor

Rectum/ Anus - puts the waste papers in the trash can Answer the following questions :

Follow the path of the food item in the digestive system and note down the function of each part.

How do you think astronauts eat and digest food in space?

II) Take two pots half filled with soil and label them A and B.

Put aluminium foil, cans, polythene and plastic in pot A and plant and animal waste in pot B and cover both with some soil.

Record changes in the pots for the next six days in an observation table

SECTION – C

(CHEMISTRY)

MCQ

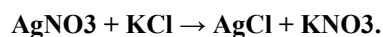
1. A student adds lead and silver to two different test tubes containing an equal amount of copper sulphate solution. The student observes that the colour of the solution in the test tube with lead changes. What explains the change in the colour of the solution?

- (a) A displacement reaction takes place as lead replaces copper from the solution.
- (b) A combination reaction takes place as lead combines with sulphate in the solution.
- (c) A decomposition reaction takes place as copper dissociates from sulphate in the solution.
- (d) A double displacement reaction takes place as copper dissociates from sulphate and lead combines with sulphate in the solution.

2. Which of the following reactions is used in black and white photography?

- (a) Combination Reaction
- (b) Decomposition Reaction
- (c) Displacement reaction
- (d) Oxidation reaction

3. The chemical reaction between potassium chloride and silver nitrate is given by the chemical equation,



What can be inferred from the chemical equation?

- (a) Silver nitrate and potassium undergo a decomposition reaction to form silver chloride and potassium nitrate
- (b) Silver nitrate and potassium undergo a displacement reaction to form silver chloride and potassium nitrate
- (c) Silver nitrate and potassium undergo a combination reaction to form silver chloride and potassium nitrate
- (d) Silver nitrate and potassium undergo a double displacement reaction to form silver chloride and potassium nitrate

4. Which of the following shows an oxidation reaction?

- (e) Gain of oxygen
- (f) Loss of oxygen
- (g) Gain of hydrogen
- (h) None of the above

5. Chemically rust is
- (a) hydrated ferrous oxide
 - (b) only ferric oxide
 - (c) hydrated ferric oxide
 - (d) none of these
6. In the decomposition of lead (II) nitrate to give lead (II) oxide, nitrogen dioxide and oxygen gas, the coefficient of nitrogen dioxide (in the balanced equation) is
- (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
7. When crystals of lead nitrate are heated strongly in a dry test tube
- (a) crystals immediately melt
 - (b) a brown residue is left
 - (c) white fumes appear in the tube
 - (d) a yellow residue is left
8. On immersing an iron nail in CuSO_4 solution for few minutes, you will observe
- (a) no reaction takes place
 - (b) the colour of solution fades away
 - (c) the surface of iron nails acquire a black coating
 - (d) the colour of solution changes to green
9. An element X on exposure to moist air turns reddish-brown and a new compound Y is formed. The substance X and Y are
- (a) $\text{X} = \text{Fe}$, $\text{Y} = \text{Fe}_2\text{O}_3$
 - (b) $\text{X} = \text{Ag}$, $\text{Y} = \text{Ag}_2\text{S}$
 - (c) $\text{X} = \text{Cu}$, $\text{Y} = \text{CuO}$
 - (d) $\text{X} = \text{Al}$, $\text{Y} = \text{Al}_2\text{O}_3$
10. Solid calcium Oxide reacts vigorously with water to form calcium hydroxide accompanied by liberation of heat. This process is called slaking of lime. Calcium hydroxide dissolves in water to form its solution called lime water. Which among the following is are true about slaking of lime and the solution formed?
- (a) It is an endothermic reaction.
 - (b) It is exothermic reaction.
 - (c) The pH of the resulting solution will be more than seven.
 - (d) The pH of the resulting solution will be less than seven.

- A) (a) & (b)
- B) (b) & (c)
- C) (a) & (d)
- D) (c) & (d)

CASE STUDY

I) A solution of slaked lime produced by the reaction is used for white washing walls. Calcium hydroxide reacts slowly with the carbon dioxide in air to form a thin layer of calcium carbonate on the walls. Calcium carbonate is formed after two to three days of white washing and gives a shiny finish to the walls. It is interesting to note that the chemical formula for marble is also CaCO_3 .

On the basis of above paragraph answer the following questions:

- 1) Give the reaction for the formation of calcium carbonate with physical states.
- 2) Write the formulas of slaked lime, quick lime.
- 3) Explain why calcium carbonate is used for white washing and not any other substance.
- 4) Explain the importance of writing the physical states in a chemical equation.
- 5) Write any one application of calcium carbonate other than white washing.

II) Those reactions in which two compounds react by an exchange of ions to form two new compounds are called double displacement reactions. A double displacement reaction usually occurs in solution and one of the products, being insoluble, precipitates out (separates as a solid). Any reaction in which an insoluble solid (called precipitate) is formed that separates from the solution is called a precipitation reaction. The reaction in which acid or acidic oxide reacts with base or basic oxide to form salt and water is called neutralisation reaction.

For example, $2\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$

1. When hydrogen sulphide gas is passed through a blue solution of copper sulphate, a black precipitate of copper sulphide is obtained and the sulphuric acid so formed remains in the solution. The reaction is an example of a

- (a) combination reaction
- (b) displacement reaction
- (c) decomposition reaction
- (d) double displacement reaction

2. Which of the following is not a double displacement reaction?

- (a) $\text{AgNO}_3(\text{aq}) + \text{NaCl}(\text{aq}) \rightarrow \text{AgCl}(\text{s}) + \text{NaNO}_3(\text{aq})$
- (b) $\text{Zn}(\text{s}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{H}_2(\text{g})$
- (c) $\text{CuSO}_4(\text{aq}) + \text{H}_2\text{S}(\text{aq}) \rightarrow \text{CuS}(\text{s}) + \text{H}_2\text{SO}_4(\text{aq})$
- (d) $\text{Pb}(\text{NO}_3)_2(\text{aq}) + 2\text{KI}(\text{aq}) \rightarrow \text{PbI}_2(\text{s}) + 2\text{KNO}_3(\text{aq})$

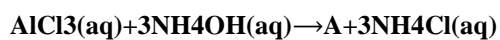
3. Barium chloride on reaction with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved?

- (I) Displacement reaction
- (II) Precipitation reaction
- (III) Combination reaction

(IV) Double displacement reaction

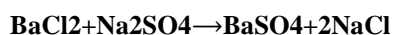
- (a) (I) only (b) (II) only (c) (III) and (IV) only (d) (II) and (V) only

4. Identify A in the following reaction.



- (a) $\text{Al}(\text{OH})_3$ (b) Al_2O_3 (c) AlH_3 (d) AlN

5. Consider the following reaction,

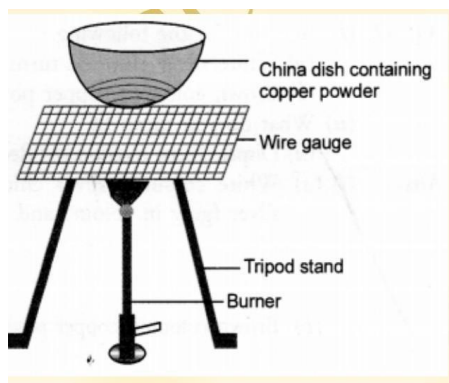


identify the precipitate in the reaction,

- (a) BaCl_2 (b) BaSO_4 (c) Na_2SO_4 (d) NaCl

PRACTICAL BASED QUESTIONS

I) Study the given diagram and answer the following questions :



- (a) Write the chemical reaction involved in the process.
(b) Mention the colour of :
copper powder and the substance formed after heating it.
(c) How can we reverse the above reaction ? Write the equation for the reverse reaction and state the substance that undergoes oxidation and the substance that undergoes reduction.

II) (a) Based on the reactions given below, arrange the metals involved in these reactions in decreasing order of reactivity. Give suitable explanation.



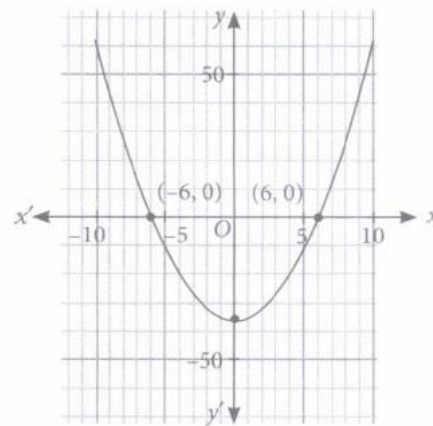
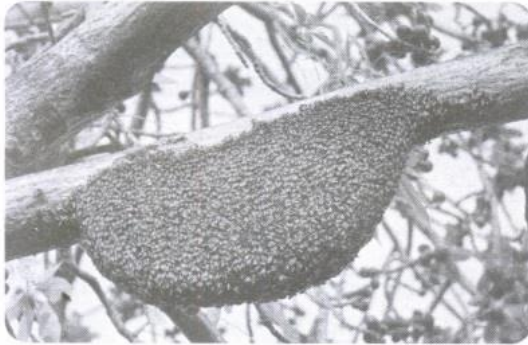
(b) What is the nature of the reactions ?

MATHEMATICS: QUESTION BANK

1.	If $\sin\theta + \cos\theta = \sqrt{2}$, then prove that $\tan\theta + \cot\theta = 2$																		
2.	If $\operatorname{cosec}\theta = x + \frac{1}{4x}$, prove that $\operatorname{cosec}\theta + \cot\theta = 2x$ or $\frac{1}{2x}$																		
3.	If $\tan\theta + \sin\theta = m$ and $\tan\theta - \sin\theta = n$, then prove that $m^2 - n^2 = 4\sqrt{mn}$																		
4.	If $x \sin^3\phi + y \cos^3\phi = \sin\phi \cos\phi$ and $x \sin\phi - y \cos\phi$, prove that $x^2 + y^2 = 1$																		
5.	If $\sqrt{3} \tan\alpha = 3 \sin\alpha$, find value of $\sin^2\alpha - \cos^2\alpha$																		
6.	The mean of following distribution is 57.6 and sum of all the observations is 50. Find the value of x and y.																		
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tbody> <tr> <td style="width: 15%;">Class interval</td> <td style="width: 12.5%;">0-20</td> <td style="width: 12.5%;">20-40</td> <td style="width: 12.5%;">40-60</td> <td style="width: 12.5%;">60-80</td> <td style="width: 12.5%;">80-100</td> <td style="width: 12.5%;">100-120</td> </tr> <tr> <td>Frequency</td> <td>7</td> <td>X</td> <td>12</td> <td>Y</td> <td>8</td> <td>5</td> </tr> </tbody> </table>	Class interval	0-20	20-40	40-60	60-80	80-100	100-120	Frequency	7	X	12	Y	8	5				
Class interval	0-20	20-40	40-60	60-80	80-100	100-120													
Frequency	7	X	12	Y	8	5													
7.	The following is the cumulative frequency (of less than type) of 1000 persons each of age 20 years and above. Determine the mean age.																		
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tbody> <tr> <td style="width: 15%;">Age below (in years)</td> <td style="width: 12.5%;">30</td> <td style="width: 12.5%;">40</td> <td style="width: 12.5%;">50</td> <td style="width: 12.5%;">60</td> <td style="width: 12.5%;">70</td> <td style="width: 12.5%;">80</td> </tr> <tr> <td>Number of persons</td> <td>100</td> <td>220</td> <td>350</td> <td>750</td> <td>950</td> <td>1000</td> </tr> </tbody> </table>	Age below (in years)	30	40	50	60	70	80	Number of persons	100	220	350	750	950	1000				
Age below (in years)	30	40	50	60	70	80													
Number of persons	100	220	350	750	950	1000													
8.	Mode of following distribution is 65 and sum of all the frequencies is 70. Find missing frequency x and y.																		
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tbody> <tr> <td style="width: 12.5%;">Class</td> <td style="width: 10%;">0-20</td> <td style="width: 10%;">20-40</td> <td style="width: 10%;">40-60</td> <td style="width: 10%;">60-80</td> <td style="width: 10%;">80-100</td> <td style="width: 10%;">100-120</td> <td style="width: 10%;">120-140</td> <td style="width: 10%;">140-160</td> </tr> <tr> <td>Frequency</td> <td>8</td> <td>11</td> <td>X</td> <td>12</td> <td>Y</td> <td>9</td> <td>9</td> <td>5</td> </tr> </tbody> </table>	Class	0-20	20-40	40-60	60-80	80-100	100-120	120-140	140-160	Frequency	8	11	X	12	Y	9	9	5
Class	0-20	20-40	40-60	60-80	80-100	100-120	120-140	140-160											
Frequency	8	11	X	12	Y	9	9	5											
9	Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars?																		
10.	At present Asha's age (in years) is 2 more than the square of her daughter Nisha's age. When Nisha grows to her mother's present age, Asha's age would be one year less than 10 times the present age of Nisha. Find the present ages of both Asha and Nisha																		
11.	The ages of two friends Ani and Biju differ by 3 years. Ani's father Dharam is twice as old as Ani and Biju is twice as old as his sister Cathy. The ages of Cathy and Dharam differ by 30 years. Find the ages of Ani and Biju.																		
12.	Vijay had some bananas and he divided them into two lots A and B. He sold the first lot at the rate of Rs. 2 for 3 bananas and the second lot at the rate of Rs. 1 per banana, and got a total of Rs. 400. If he had sold the first lot at the rate of Rs. 1 per banana, and the second lot at the rate of Rs. 4 for 5 bananas, his total collection would have been Rs. 460. Find the total number of bananas he had.																		
13.	If α and β are the zeroes of the quadratic polynomial $f(x) = 2x^2 - 5x + 7$ find a polynomial where zeroes are $2\alpha + 3\beta$ and $3\alpha + 2\beta$																		
14.	Find the greatest number of four digits which is exactly divisible by 15, 24 and 36.																		
15.	If the zero of the polynomial $x^2 - px + q$ are double in value to the zeroes of $2x^2 - 5x - 3$, find the value of p and q.																		
16.	Prove that $7 - \frac{2}{3}\sqrt{5}$ is irrational, it is given that $\sqrt{5}$ is irrational.																		

17.	<p>Indian Army is the third biggest military contingent in the World next to USA and China. However, there are many firsts that make Indian army stand out in the world, making us all Indians very proud. Knowing them, will help you celebrate Republic day with greater vigour and gratitude.</p> <p>On 71th republic day Parade in Delhi Captian RS Meel is planing for parade of following two group: (a) First group of Army contingent of 624 members behind an army band of 32 members. (b) Second group of CRPF troops with 468 soldiers behind the 228 members of bikers. These two groups are to march in the same number of columns. This sequence of soldiers is followed by different states Jhanki which are showing the culture of the respective states.</p> <p>(i) What is the maximum number of columns in which the army troop can march?</p> <p>(ii) What is the maximum number of columns in which the CRPF troop can march?</p> <p>(iii) What is the maximum number of columns in which total army troop and CRPF troop together can march past?</p> <p>(iv) What should be subtracted with the numbers of CRPF soldiers and the number of bikers so that their maximum number of column is equal to the maximum number of column of army troop?</p>
18.	<p>Dipesh bought 3 notebooks and 2 pens for Rs. 80. His friend Ramesh said that price of each notebook could be Rs. 25. Then three notebooks would cost Rs.75, the two pens would cost Rs. 5 and each pen could be for Rs. 2.50. Another friend Amar felt that Rs. 2.50 for one pen was too little. It should be at least Rs. 16. Then the price of each notebook would also be Rs.16. Lokesh also bought the same types of notebooks and pens as Dipesh. He paid 110 for 4 notebooks and 3 pens</p> <p>(i) Let the cost of one notebook be x and that of pen be y . Which of the following set describe the given problem ?</p> <p>(ii) What is the exact cost of the notebook?</p> <p>(iii) What is the exact cost of the pen?</p> <p>(iv) What is the total cost if they will purchase the same type of 15 notebooks and 12 pens.</p>

19. While playing in garden, Sahiba saw a honeycomb and asked her mother what is that. She replied that it's a honeycomb made by honey bees to store honey. Also, she told her that the shape of the honeycomb formed is parabolic. The mathematical representation of the honeycomb structure is shown in the graph.



Based on the above information, answer the following questions.

- (i) Graph of a quadratic polynomial is in _____ shape.
- (ii) The expression of the polynomial represented by the graph is
- (iii) Find the value of the polynomial represented by the graph when $x = 6$.
- (iv) The sum of zeroes of the polynomial $x^2 + 2x - 3$ is
- (v) If the sum of zeroes of polynomial $at^2 + 5t + 3a$ is equal to their product, then find the value of a .
20. Apples are most widely planted and are commercially the most important fruit crop in Jammu and Kashmir. The cultivation of apple crop in Jammu and Kashmir shows particular interest for a number of reasons. In terms of both area and production, apple is very beneficial fruit crop. This provides a major source of income and employment in Jammu and Kashmir. Horticultural department has tasked their statistical officer to create a model for farmers to be able to predict their produce output based on various factors. A box containing 250 apples was opened and each apple was weighed. The distribution of the masses of the apples is given in the following table:

Mass (in grams)	80-100	100-120	120-140	140-160	160-180
Frequency	20	60	70	x	60

- (i) How many apples are in the range 140-160 mass?
- (ii) What is the mean mass of the apples?
- (iii) What is the upper limit of the median class?
- (iv) What is the modal mass of the apples?

PUNJABI: ASSIGNMENT

- ਅਣਡਿੱਠਾ ਪੈਰਾ

ਲੋਕ-ਨਾਟਕ ਨਿਬੰਧ, ਆਪ-ਮੁਹਾਰਾ ਤੇ ਅੱਖੜ ਹੁੰਦਾ ਹੈ। ਭਦਰ ਪੁਰਸ਼ ਇਸ ਤੋਂ ਕਤਰਾਉਂਦੇ ਹਨ। ਲੋਕ-ਨਾਟਕ ਵਿਚ ਭੋਲਾਪਨ ਹੈ। ਤੁਰੰਤ ਗੱਲ ਘੜ ਕੇ ਮੌਕੇ ਉਤੇ ਘਟਾ ਦੇਣ ਦਾ ਰਸ ਹੈ ਅਤੇ ਇਸ ਦਾ ਖੇਡਣ-ਢੰਗ ਖੁਲ੍ਹਾ-ਡੁੱਲ੍ਹਾ ਹੈ। ਸ਼ਾਸਤਰੀ ਨਾਟਕ ਗੁੰਝਲਦਾਰ, ਚੇਤੰਨ, ਵਿਕਸਿਤ ਤੇ ਨਿਯਮ-ਬੱਧ ਹੁੰਦਾ ਹੈ। ਲੋਕ-ਨਾਟਕ ਘੜ-ਘੜ ਹੈ; ਸ਼ਾਸਤਰੀ ਨਾਟਕ ਕਲਾ ਦੀ ਛਣੀ ਨਾਲ ਤ੍ਰਾਸਿਆ ਹੋਇਆ ਹੈ। ਇਕ ਵੱਗਦੇ ਦਰਿਆ ਦਾ ਪਾਣੀ ਹੈ; ਦੂਜਾ ਸਰੋਵਰ ਦਾ ਨਿਤਰਿਆਂ ਹੋਇਆ ਜਲ। ਇਕ ਦਾ ਰੋਖਟਾ ਢਿੱਲਾ ਤੇ ਖਿੰਡਿਆ ਖਿੰਡਿਆ ਦੂਜੇ ਦਾ ਕੱਸਿਆ ਹੋਇਆ, ਤੇ ਉਸ ਵਿਚ ਗਣਿਤ ਵਿਦਿਆ ਦਾ ਸਮਤੋਲ ਹੈ। ਇਕ ਪੱਛੂ ਹੈ; ਦੂਜਾ ਮੰਦਰਾਂ ਦਰਬਾਰਾਂ ਦੀ ਉਪਜ। ਲੋਕ-ਨਾਟਕ ਦੇਖਣ ਲਈ ਸਾਰੇ ਦਾ ਸਾਰਾ ਪਿੰਡ ਹੁੰਮਹੁਮਾ ਕੇ ਆਉਂਦਾ ਹੈ, ਜਿਸ ਵਿਚ ਕਿਸੇ ਮੇਲੇ ਦਾ ਰੰਗ ਹੁੰਦਾ ਹੈ। ਸ਼ਾਸਤਰੀ ਨਾਟਕ ਗੁਣੀ ਲੋਕਾਂ ਲਈ ਹੈ। ਲੋਕ-ਨਾਟਕ ਲਈ ਜਨਤਾ ਨੂੰ ਬਹੁਤੀ ਜਾਣਕਾਰੀ ਦੀ ਲੋੜ ਨਹੀਂ, ਸ਼ਾਸਤਰੀ ਨਾਟਕ ਦੇ ਦਰਸ਼ਕਾਂ ਤੋਂ ਮੰਗ ਕੀਤੀ ਜਾਂਦੀ ਹੈ ਕਿ ਉਨ੍ਹਾਂ ਨੂੰ ਨਾਟਕ ਕਲਾ ਦਾ ਚੋਖਾ ਗਿਆਨ ਹੋਵੇ। ਇਸ ਕਰਕੇ ਲੋਕ-ਨਾਟਕ ਦੀ ਖਿੱਚ ਦਾ ਘੇਰਾ ਸ਼ਾਸਤਰੀ ਨਾਲੋਂ ਵਧੇਰੇ ਹੈ। ਸ਼ਾਸਤਰੀ ਨਾਟਕ ਆਪਣੀ ਸੂਖਮ ਕਲਾ ਦੇ ਗੁੰਝਲਦਾਰ ਸੁਭਾਅ ਕਰਕੇ ਆਪਣੇ ਘੇਰੇ ਨੂੰ ਸੀਮਤ ਕਰਦਾ ਹੈ।

ਉਪਰੋਕਤ ਪੈਰਾ ਪੜ੍ਹਕੇ ਹੇਠ ਲਿਖੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦਿਓ:-

1. ਭੱਦਰਪੁਰਸ਼ ਲੋਕ ਨਾਟਕ ਤੋਂ ਕਿਉਂ ਕਤਰਾਉਂਦੇ ਹਨ?
2. ਲੋਕ ਨਾਟਕ ਸ਼ਾਸਤਰੀ ਨਾਟਕ ਦੇ ਮੁਕਾਬਲੇ ਵਧੇਰੇ ਮਕਬੂਲ ਹਨ, ਕਿਉਂ?
3. ਸ਼ਾਸਤਰੀ ਨਾਟਕ ਨੂੰ ਦੇਖਣ ਲਈ ਗਿਆਨ ਦੀ ਲੋੜ ਕਿਉਂ ਹੁੰਦੀ ਹੈ?
4. ਇਸ ਪੈਰੇ ਦਾ ਢੁੱਕਵਾਂ ਸਿਰਲੇਖ ਲਿਖੋ।

- ਅਣਡਿੱਠੀ ਕਾਵਿ ਟੁਕੜੀ

“ ਜਦ ਰਾਤ ਚਾਨਣੀ ਖਿੜਦੀ ਹੈ,
ਕੋਈ ਰਾਗ ਇਲਾਹੀ ਛਿੜਦਾ ਹੈ।
ਗਿੱਧੇ ਨੂੰ ਲੇਹੜਾ ਆਂਦਾ ਹੈ,
ਜੋਬਨ ਤੇ ਬਿਰਹਾ ਭਿੜਦਾ ਹੈ।
ਵੰਡਲੀ ਵਹਿਣਾ ਵਿਚ ਰੁੜ੍ਹਦੀ ਹੈ,
ਜਦ ਤੂੰਬਾ ਸਿਰ ਧੁਣਿਆਂਦਾ ਹੈ।
ਮਿਰਜ਼ਾ ਪਿਆ ਕੂਕਾਂ ਛਡਦਾ ਹੈ
ਤੇ ਵਾਰਸ ਹੀਰ ਸੁਣਾਂਦਾ ਹੈ।“

ਉਪਰੋਕਤ ਕਾਵਿ ਟੁਕੜੀ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦਿਓ:-

5. ਕਾਵਿ ਟੁਕੜੀ ਵਿੱਚੋਂ ਵਿਛੋੜੇ ਦਾ ਸਹੀ ਸਮਾਨਾਰਥਕ ਸ਼ਬਦ ਚੁਣੋ।
6. ਤੂੰਬੇ ਦੀ ਧੁਣ ਵੱਜਣ ਤੇ ਕੀ ਹੁੰਦਾ ਹੈ?
7. ਇਸ ਕਾਵਿ ਟੁਕੜੀ ਵਿਚ ਕਿਹੜੇ ਕਿਹੜੇ ਕਿੱਸਿਆਂ ਦਾ ਜ਼ਿਕਰ ਆਇਆ ਹੈ?
- ਤਸਵੀਰ ਵਰਣਨ
8. ਤਸਵੀਰ ਦਾ ਵਰਨਣ 50-60 ਸ਼ਬਦਾਂ ਵਿੱਚ ਕਰੋ



9. ਤੁਹਾਡੇ ਸਕੂਲ ਅੱਧੀ ਛੁੱਟੀ ਸਿਰਫ 15 ਮਿੰਟ ਲਈ ਹੁੰਦੀ ਹੈ, ਜੇ ਵਿਦਿਆਰਥੀਆਂ ਲਈ ਕਾਫੀ ਨਹੀਂ। ਅੱਧੀ ਛੁੱਟੀ ਦੀਆਂ ਗਤੀਵਿਧੀਆਂ ਬਿਆਨ ਕਰਦੇ ਹੋਏ ਇਸ ਦਾ ਸਮਾ ਵਧਾਉਣ ਲਈ ਸਕੂਲ ਦੇ ਪ੍ਰਿੰਸੀਪਲ ਨੂੰ ਬਿਨੈ ਪੱਤਰ ਲਿਖੋ।

- ਹੇਠ ਲਿਖੇ ਮੁਹਾਵਰਿਆਂ ਦੇ ਅਰਥ ਦੱਸ ਕੇ ਵਾਕ ਬਣਾਓ:-
- 10. ਗੋਹੜੇ ਵਿਚੋਂ ਪੂਣੀ ਛੋਹਣੀ
- 11. ਘੋਗਲ ਕੰਨਾ ਹੋਣਾ
- 12. ਘਰ ਦਾ ਬੁਹਾ ਦੂਜੇ ਬੰਨੇ ਲੱਗਣਾ
- ਹੇਠ ਲਿਖੇ ਸ਼ਬਦਾਂ ਦੇ ਦੇ ਦੇ ਅਗੇਤਰ ਬਣਾਓ:-
- 13. ਚੈ, ਸਭ
- ਹੇਠ ਲਿਖੇ ਸ਼ਬਦਾਂ ਦੇ ਦੇ ਦੇ ਪਿਛੇਤਰ ਬਣਾਓ:-
- 14. ਵਾਨ, ਤਣ
- ਸਮਾਸੀ ਸ਼ਬਦ
- 15. ਇਕ ਐਸਾ ਸਮਾਸੀ ਸ਼ਬਦ ਲਿਖੋ ਜੋ ਕਿਰਿਆ+ਕਿਰਿਆ ਤੋਂ ਬਣਿਆ ਹੋਵੇ।
- 16. “ਲਾਉ-ਬੁਝਾਉ” ਕਿਸ ਕਿਸਮ ਦਾ ਸਮਾਸੀ ਸ਼ਬਦ ਹੈ।
- ਬਹੁਅਰਥਕ ਸ਼ਬਦ
- 17. “ਬੋਲੀ” ਦਾ ਇਕ ਅਰਥ ਹੈ ਭਾਸ਼ਾ ਅਤੇ ਦੂਸਰਾ ਲਿਖੋ।
- 18. “ਆਫਰਨਾ” ਅਤੇ “ਹੱਡੀਆਂ” ਕਿਸ ਬਹੁਅਰਥਕ ਸ਼ਬਦ ਦੇ ਅਰਥ ਹਨ।
- ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ:-
- 19. “ਕਿਰਿਆ ਦੇ ਵਾਪਰਨ ਦਾ ਢੰਗ” ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ ਦੀ ਕਿਸ ਕਿਸਮ ਰਾਹੀਂ ਦਰਸਾਇਆ ਜਾਂਦਾ ਹੈ?
- 20. ਪਰਿਮਾਣ ਵਾਚਕ ਅਤੇ ਸੰਖਿਆ ਵਾਚਕ ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ ਵਿਚ ਉਦਾਹਰਨ ਸਾਹਿਤ ਅੰਤਰ ਸਪਸ਼ਟ ਕਰੋ।

LIFE SKILL:

Students will make their own 'Career Path Card' as shown below, use graphic design to design it. Your card must include subjects needed to choose the career, Skills required, entrance exams, Universities/Institutes especially in Punjab, Industry or Field of work in that Career.

Don't forget to upload your Card in a drive with link:

<https://drive.google.com/drive/folders/1P1n3h-rh1sUUx36akaQ6XZznDFUOfQLI?usp=sharing>

Sample Card

ARTIFICIAL INTELLIGENCE:

The submission link of holidays homework of Artificial Intelligence is <https://forms.gle/f8JKgY59pg48A7t9A>

Q1:- Create an App on MIT App Inventor on "Tourist App for Odisha".

The Rules and regulations are as follows:-

- 1) The App must be having at least 5-6 screens.
- 2) The App must be imported and send through google form link mentioned above.

Q2:- Create a project on Email Slicer using Python Programming (List, Sequence, Sets)

For Example:-

Input:

rakeshsharma@gmail.com

Output:

Your username is rakeshsharma & domain is gmail.com

- 1) The Python coding must be done in Jupyter Notebook
- 2) The project must be imported and then send the file on link given above.

INFORMATION TECHNOLOGY

The submission link of holidays homework of Information Technology is <https://forms.gle/f8JKgY59pg48A7t9A>

Q1:- Create a pamphlet on "Tourist Places in Odisha" in OpenOffice

The Rules and regulations are as follows:-

- a) The Pamphlet must be having all the tourist places with their proper description.
- b) The pamphlet must be shared through google form link mentioned above.

Q2:- Create a website on "CHILD CANCER CARE".

The Rules and regulations are as follows:-

- a) The Home Page of website should be named as Index.html
- b) Website must be Responsive and contain 5-6 webpages.
- c) Website made using Online Platform will be ineligible
- d) Platform- Weebly, Wix.
- e) The Video of Website should be shared through google form link mentioned above.

IFM:

Instructions:

- Do your work on A 4 size colour sheet.
- Submit holidays homework in a folder with introduction and index.

*Make a project on SEBI explaining its functions, stock exchange registered with SEBI, other intermediaries registered with SEBI (Atleast 5 stock exchanges and 10 other intermediaries)

*Collect information on recent issues launched via book building method and compile the information on pricing of issue, issue size and prospectus of issue.

Art integrated project:

*Make flash cards on short term and long term investment avenues. Write latest rate of interest.

Also suggest best option for investment.