कक्षा 11 शीतकालीन अवकाश गृह कार्य

1- हिन्दी अध्यापक-पद हेतु केंद्रीय विद्यालय काशीपुर को एक आवेदन पत्र लिखिए.

2- दैनिक भास्कर, काशीपुर के संपादक को पत्र लिखकर काशीपुर में बढ़ रहे अपराधों के प्रति चिंता प्रकट कीजिए.

3-.प्रत्येक विषय पर ४०० शब्दों का एक निबंध लिखिए –

(क) कामकाजी नारी और उसकी समस्याएँ   (ख) प्रदूषण   (ग) छुआछूत का अभिशाप

4-. निम्नलिखित प्रश्नों के उत्तर दीजिए-

(क) स्तम्भ लेखन का क्या आशय है?

(ख) जनसंचार का सबसे प्रमुख काम क्या है?

(ग) हिन्दी नेट-संसार की किन्हीं दो साहित्यिक पत्रिकाओं का नाम लिखिए.

(घ) बीट से क्या आशय है?

(ड) पत्रकारिता को परिभाषित कीजिए.

5-. "गुम होता बचपन॰ पर फीचर लिखिए.

6- बेबी हालदार के बारे में लिखिए।

7-रजनी पाठ का सार लिखिए

8-जामुन का पेड़ -पाठ से आपको क्या संदेश मिलता है.

Kendriya Vidyalaya,Kashipur

Holiday Home Work -Winter Vacation 2023-24

Subject - English   Class - XI

1.Read any one novel of the following authors:-

A.Anita Desai

B.R.K.Narayan

(i) Write a book review and critical appreciation of the novel in 250-300 words

(ii) Write a charactersketch of any one character in the novel in 100-150 words.

2.Write summary of Father to son poem.

3.Do revision of P.T.2 syllabus.

CHAPTER 3 TRIGONOMETRIC FUNCTIONS

1. Find the degree measure of 5 π/12 radians.

2. Write the value of $\sqrt{2 + \sqrt{2 + 2\cos\theta}}$ in the simplest form.

3. Show that: $\dfrac{\tan\left(\frac{\pi}{4}+x\right)}{\tan\left(\frac{\pi}{4}-x\right)} = \left(\dfrac{1+\tan x}{1-\tan x}\right)^2$

4. If A, B, C, D be the angles of a cyclic quadrilateral, taken in order, prove that
(i) cos A + cos B + cos C + cos D = 0
(ii) cos (180° + A) + cos (180° + B) + cos (180° + C) – sin (90° + D) = 0.

5. Prove that: sin x + sin y + sin z – sin (x + y + z) = $4\sin\dfrac{x+y}{2}\sin\dfrac{y+z}{2}\sin\dfrac{z+x}{2}$

6. If θ is in IV quadrant and $\tan\theta = -\dfrac{5}{12}$

    i. $\sin\theta$ *is equal to*
        a. $\dfrac{5}{13}$ b. $\dfrac{12}{13}$ c. $\dfrac{-5}{13}$ d. $\dfrac{-12}{13}$

    ii. $\cos\theta$ *is equal to*
        a. $\dfrac{5}{13}$ b. $\dfrac{12}{13}$ c. $\dfrac{-5}{13}$ d. $\dfrac{-12}{13}$

    iii. $\sin\dfrac{\theta}{2}$ *is equal to*
        a. $-\dfrac{1}{\sqrt{26}}$ b. $-\dfrac{5}{\sqrt{26}}$ c. $\dfrac{5}{\sqrt{26}}$ d. $\dfrac{1}{\sqrt{26}}$

    iv. $\cos\dfrac{\theta}{2}$ *is equal to*
        a. $-\dfrac{1}{\sqrt{26}}$ b. $-\dfrac{5}{\sqrt{26}}$ c. $\dfrac{5}{\sqrt{26}}$ d. $\dfrac{1}{\sqrt{26}}$

CHAPTER 9 STRAIGHT LINES

1. Slope of a line, which cuts off intercepts of equal length on the axis, is:-
    A) -1   B) 0   C) 2   D) $\sqrt{3}$

2. The slope of a line is doubled of the slope of another line if tangents of the angle between them is $\dfrac{1}{3}$, find the slopes of other line.

3. If line $\dfrac{x}{a} + \dfrac{y}{b} = 1$, passes through the points (2, -3) and (4, -5), find the values of a and b.

4. If 'p' is the length of perpendicular from origin to line $\dfrac{x}{a} + \dfrac{y}{b} = 1$, and a^2, p^2, b^2 are in G.P.
    Prove that a + b = ab

5. Assuming that straight lines work as the plane mirror for a point, find the image of the point (1,2) in the line x – 3y + 4 = 0.

6. Find foot of perpendicular from the point P (3, 8) to line x + 3y = 7.

7. If 'p' is the length of the perpendicular of origin of line, whose intercepts on axes are 'r' and 's', then
    prove that $\dfrac{1}{p^2} = \dfrac{1}{r^2} + \dfrac{1}{s^2}$.

8. Find the equation of the bisectors of the angles between the coordinate axes.

9. A triangular park has two of its vertices as $B(-4,1)$ and $C(2,11)$. The third vertex A is a point dividing the line joining the points $(3,1)$ and $(6,4)$ in the ratio $2:1$
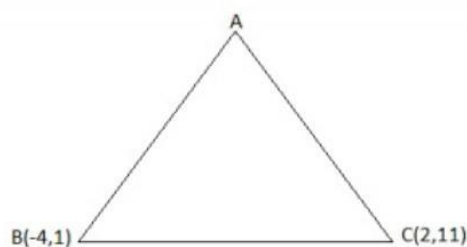
Based on above information answer the following questions
(i) Find the coordinates of the third vertex A .
(ii) Find the equation of line passing through B and C .
(iii) The electric department wants to put a electric wire joining A to the mid point of BC. Find the length of the wire required .

CHAPTER 10 CONIC SECTIONS

1. The eccentricity of a parabola is ?
    (a) e = 1   (b) e < 1   (c) e > 1   (d) 0 < e < 1

2. The centre of the circle $x^2 + y^2 - 8x + 12y - 25 = 0$ is
    (a) (2,−3)   (b) (−2,3)   (c) (−4,6)   (d) (4,−6)

3. Find the equation of the ellipse, whose length of the major axis is 20 and foci are $(0, \pm5)$.

4. Find the equation of the hyperbola where foci are $(0, \pm12)$ and the length of the latus rectum is 36.

5. Find the equation of the circle passing through the points (4, 1) and (6,5) and whose Centre is on the line 4x + y = 16.

6. Given the ellipse with equation $9x^2 + 25y^2 = 225$, find the major and minor axes, eccentricity, foci and vertices.

7. A rod of length 12 cm moves with its ends always touching the coordinate axes. Determine the equation of the locus of a point P on the rod, which is 3 cm from the end in contact with the x-axis.

8. Find the equation of the circle passing through the points (9, 1), (7, 9) and (−2, 12).

9. The cable of a uniformly loaded suspension bridge hangs in the form of a parabola. The roadway which is horizontal and 100 m long is supported by vertical wires attached to the cable, the longest wire being 30 m and the shortest being 6 m. Find the length of a supporting wire attached to the roadway 18 m from the middle.

CHAPTER 11 INTRODUCTION TO THREE- DIMENSIONAL GEOMETRY

1. Name the octant in which each of the following points lies:
       (i) $(4, -2, 3)$,   (ii) $(4, -2, -5)$

2. Three vertices of a parallelogram ABCD are A $(3, -1, 2)$, B $(1, 2, -4)$ and C $(-1, 1, 4)$. Find the coordinates of the fourth vertex.

3. Find the equation of set of points P such that $PA^2 + PB^2 = 2k^2$, where A and B are the points $(3, 4, 5)$ and $(-1, 3, -7)$ respectively.

4. If the origin is the centroid of the triangle PQR with vertices P $(2a, 2, 6)$, Q $(-4, 3b, -10)$ and R $(8, 4, 2c)$, then find the values of a, b and c.

5. Find a point on ZX-plane which is equidistant from the points $(1, -1, 0)$, $(2, 1, 2)$ and $(3, 2, -1)$.

6. Show that if $x^2 + y^2 = 1$, then the point $(x, y, \sqrt{1 - x^2 - y^2})$ is at a distance 1 unit from the origin.

LAB MANUAL ACTIVITIES

Act. No.	S.N.	Class XI (Lab manual activities)
③	1.	To represent set theortical operations using Venn Diagram.
⑥	2.	Distinguish between relation & function.
⑦	3.	Relation between degree & radian.
⑨	4.	To prepare model for value of $\sin x$ & $\cos x$
⑪	5.	To Interpret i geometrically.
⑮	⑥	Pascal triangle's Law.
㉒	⑦	To Construct parabola.
㉖	⑧	To Construct ellipse.
㉘	⑨	To find analytically $\lim_{x \to a} \frac{(x^2 - a^2)}{(x - a)}$
㉜	⑩	Write sample space which die is rolled once & twice.

Activity 3

OBJECTIVE

To represent set theoretic operations using Venn diagrams.

MATERIAL REQUIRED

Hardboard, white thick sheets of paper, pencils, colours, scissors, adhesive.

METHOD OF CONSTRUCTION

1. Cut rectangular strips from a sheet of paper and paste them on a hardboard. Write the symbol U in the left/right top corner of each rectangle.

2. Draw circles A and B inside each of the rectangular strips and shade/colour different portions as shown in Fig. 3.1 to Fig. 3.10.

DEMONSTRATION

1. U denotes the universal set represented by the rectangle.

2. Circles A and B represent the subsets of the universal set U as shown in the figures 3.1 to 3.10.

3. A′ denote the complement of the set A, and B′ denote the complement of the set B as shown in the Fig. 3.3 and Fig. 3.4.

4. Coloured portion in Fig. 3.1. represents A ∪ B.

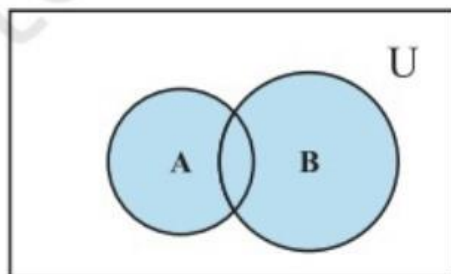Fig. 3.1

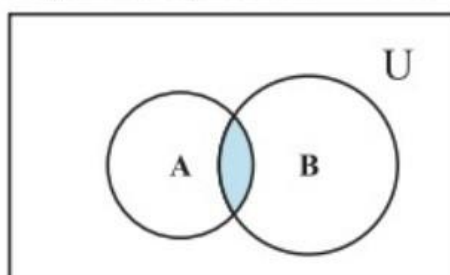5. Coloured portion in Fig. 3.2. represents A ∩ B.

Fig. 3.2

6. Coloured portion in Fig. 3.3 represents A′
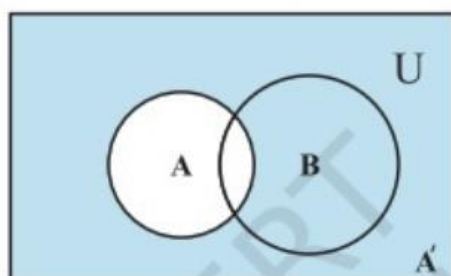

Fig. 3.3

7. Coloured portion in Fig. 3.4 represents B′

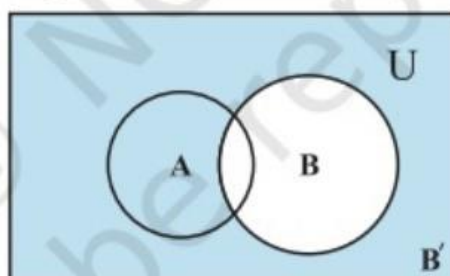
Fig. 3.4

8. Coloured portion in Fig. 3.5 represents (A ∩ B)′
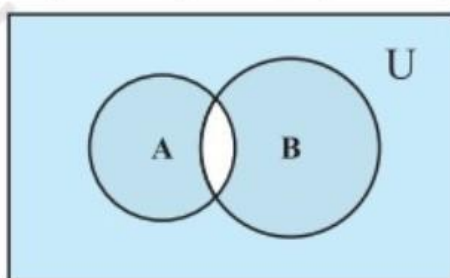

Fig. 3.5

9. Coloured portion in Fig. 3.6 represents $(A \cup B)'$
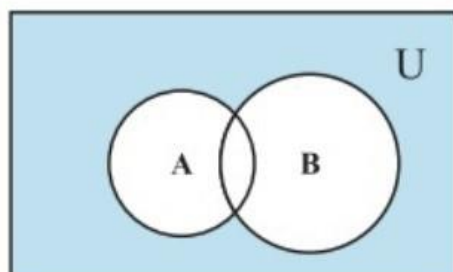

Fig. 3.6

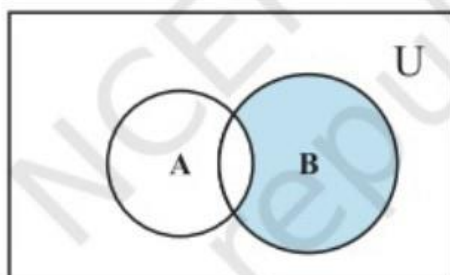10. Coloured portion in Fig. 3.7 represents $A' \cap B$ which is same as $B - A$.

Fig. 3.7

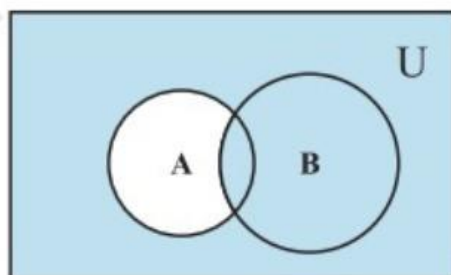11. Coloured portion in Fig. 3.8 represents $A' \cup B$.

Fig. 3.8

Laboratory Manual

12. Fig. 3.9 shows $A \cap B = \phi$
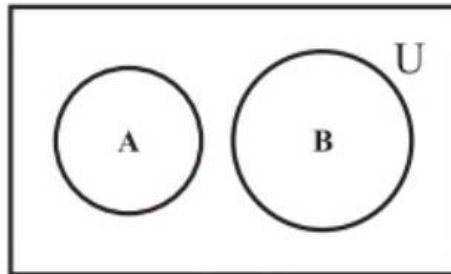
Fig. 3.9

13. Fig. 3.10 shows $A \subset B$

Fig. 3.10

OBSERVATION

1. Coloured portion in Fig. 3.1, represents _____
2. Coloured portion in Fig. 3.2, represents _____
3. Coloured portion in Fig. 3.3, represents _____
4. Coloured portion in Fig. 3.4, represents _____
5. Coloured portion in Fig. 3.5, represents _____
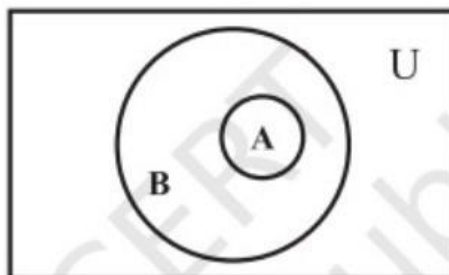6. Coloured portion in Fig. 3.6, represents _____
7. Coloured portion in Fig. 3.7, represents _____
8. Coloured portion in Fig. 3.8, represents _____
9. Fig. 3.9, shows that $(A \cap B) =$ _____
10. Fig. 3.10, represents A _____ B.

APPLICATION

Set theoretic representation of Venn diagrams are used in Logic and Mathematics.

Activity 6

OBJECTIVE

To distinguish between a Relation and a Function.

MATERIAL REQUIRED

Drawing board, coloured drawing sheets, scissors, adhesive, strings, nails etc.

METHOD OF CONSTRUCTION

1. Take a drawing board/a piece of plywood of convenient size and paste a coloured sheet on it.

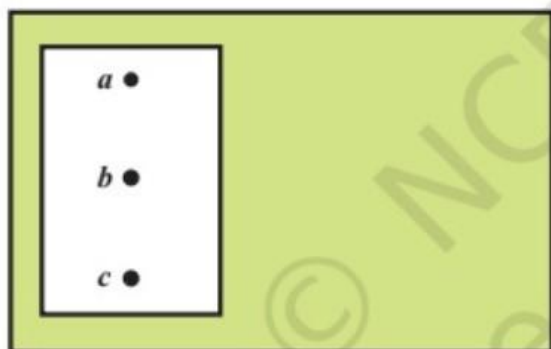2. Take a white drawing sheet and cut out a rectangular strip of size 6 cm × 4 cm and paste it on the left side of the drawing board (see Fig. 6.1).

Fig. 6.1
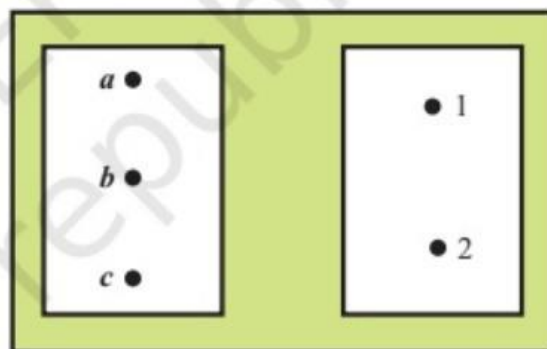
Fig. 6.2
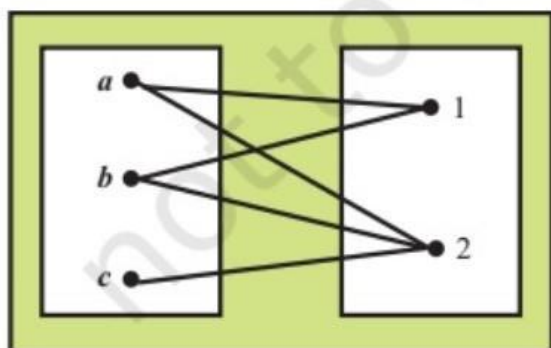
Fig. 6.3
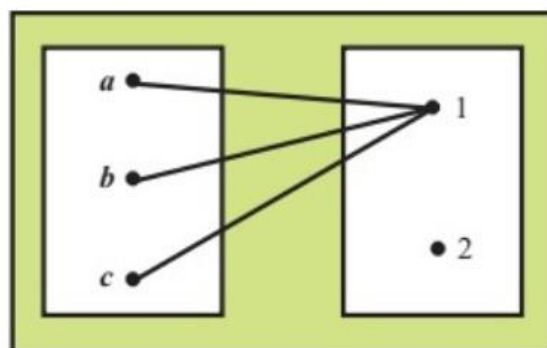
Fig. 6.4
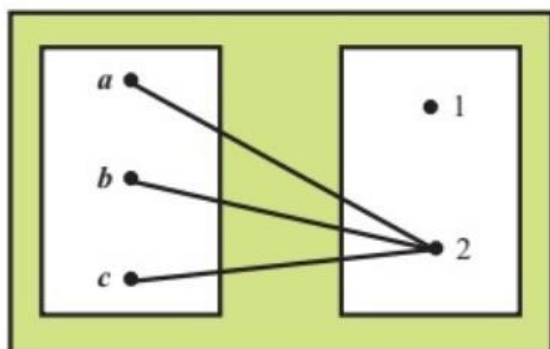
Fig. 6.5
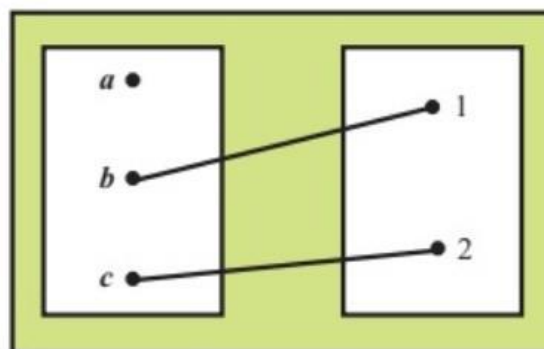
Fig. 6.6

3. Fix three nails on this strip and mark them as *a, b, c* (see Fig. 6.1).

4. Cut out another white rectangular strip of size 6 cm × 4 cm and paste it on the right hand side of the drawing board.

5. Fix two nails on the right side of this strip (see Fig. 6.2) and mark them as 1 and 2.

DEMONSTRATION

1. Join nails of the left hand strip to the nails on the right hand strip by strings in different ways. Some of such ways are shown in Fig. 6.3 to Fig. 6.6.

2. Joining nails in each figure constitute different ordered pairs representing elements of a relation.

OBSERVATION

1. In Fig. 6.3, ordered pairs are _____.

   These ordered pairs constitute a _____ but not a _____.

2. In Fig. 6.4, ordered pairs are _____. These constitute a _____ as well as _____.

3. In Fig 6.5, ordered pairs are _____. These ordered pairs constitute a _____ as well as _____.

4. In Fig. 6.6, ordered pairs are _____. These ordered pairs do not represent _____ but represent _____.

Mathematics

APPLICATION

Such activity can also be used to demonstrate different types of functions such as constant function, identity function, injective and surjective functions by joining nails on the left hand strip to that of right hand strip in suitable manner.

Activity 7

OBJECTIVE

To verify the relation between the degree measure and the radian measure of an angle.

MATERIAL REQUIRED

Bangle, geometry box, protractor, thread, marker, cardboard, white paper.

METHOD OF CONSTRUCTION

1. Take a cardboard of a convenient size and paste a white paper on it.

2. Draw a circle using a bangle on the white paper.

3. Take a set square and place it in two different positions to find diameters PQ and RS of the circle as shown in the Fig.7.1 and 7.2
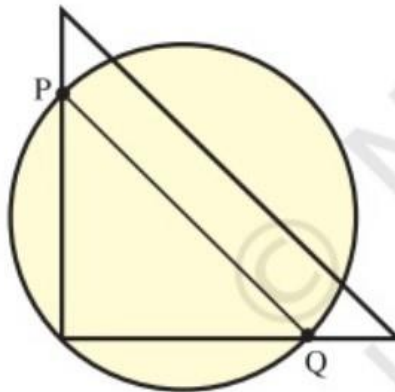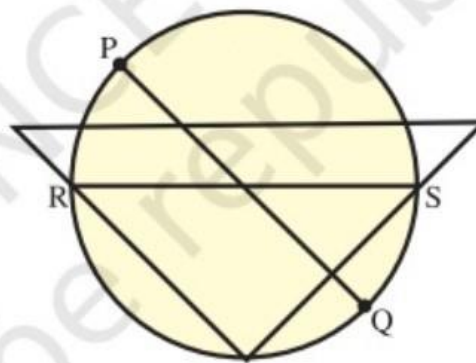
Fig. 7.1   Fig. 7.2

4. Let PQ and RS intersect at C. The point C will be the centre of the circle (Fig. 7.3).

5. Clearly CP = CR = CS = CQ = radius.
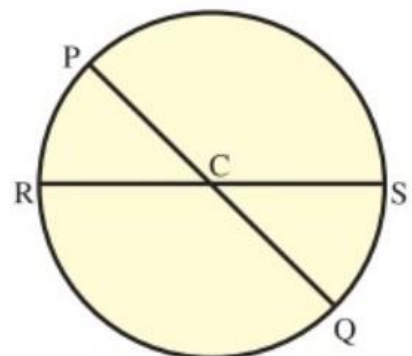
Fig. 7.3

DEMONSTRATION

1. Let the radius of the circle be r and l be an arc subtending an angle θ at the centre C, as shown in Fig. 7.4. $\theta = \dfrac{l}{r}$ radians.
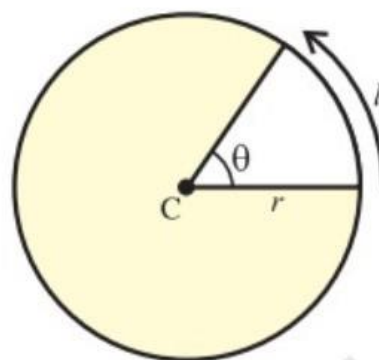
2. If Degree measure of $\theta = \dfrac{l}{2\pi r} \times 360$ degrees

Fig. 7.4

Then $\dfrac{l}{r}$ radians $= \dfrac{l}{2\pi r} \times 360$ degrees

or 1 radian $= \dfrac{180}{\pi}$ degrees $= 57.27$ degrees.

OBSERVATION

Using thread, measure arc lengths RP, PS, RQ, QS and record them in the table given below :

S.No	Arc	length of arc (l)	radius of circle (r)	Radian measure
1.	$\overset{\frown}{RP}$	--------	--------	$\angle RCP = \dfrac{\overset{\frown}{RP}}{r} = \_\_$
2.	$\overset{\frown}{PS}$	--------	--------	$\angle PCS = \dfrac{\overset{\frown}{PS}}{r} = \_\_$
3.	$\overset{\frown}{SQ}$	--------	--------	$\angle SCQ = \dfrac{\overset{\frown}{SQ}}{r} = \_\_$
4.	$\overset{\frown}{QR}$	--------	--------	$\angle QCR = \dfrac{\overset{\frown}{QR}}{r} = \_\_$

Laboratory Manual

2. Using protractor, measure the angle in degrees and complete the table.

Angle	Degree measure	Radian Measure	Ratio = $\dfrac{Degree\ measure}{Radian\ measure}$
∠ RCP	--------	--------	--------
∠ PCS	--------	--------	--------
∠ QCS	--------	--------	--------
∠ QCR	--------	--------	--------

3. The value of one radian is equal to _____ degrees.

APPLICATION

This result is useful in the study of trigonometric functions.

Activity 9

METHOD OF CONSTRUCTION

1. Take a stand fitted with 0°-360° protractor.

2. Consider the radius of protractor as 1 unit.
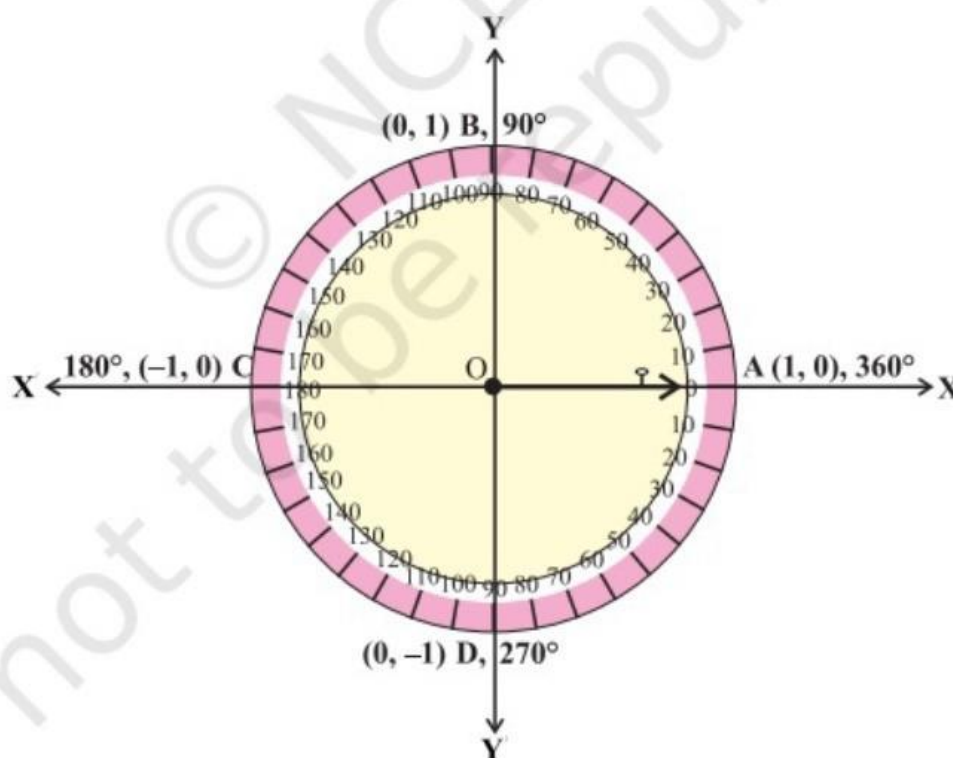
Fig. 9

3. Draw two lines, one joining 0°-180° line and another 90°-270° line, obviously perpendicular to each other.

4. Mark the ends of 0°-180° line as (1,0) at 0°, (–1, 0) at 180° and that of 90° - 270° line as (0,1) at 90° and (0, –1) at 270°

5. Take a plastic circular plate and mark a line to indicate its radius and fix a handle at the outer end of the radius.

6. Fix the plastic circular plate at the centre of the protractor.

DEMONSTRATION

1. Move the circular plate in anticlock wise direction to make different angles like 0, $\dfrac{\pi}{2}$, π, $\dfrac{3\pi}{2}$, 2π etc.

2. Read the values of sine and cosine function for these angles and their multiples from the perpendicular lines.

OBSERVATION

1. When radius line of circular plate is at 0° indicating the point A (1,0), $\cos 0 = $ _____ and $\sin 0 = $ _____.

2. When radius line of circular plate is at 90° indicating the point B (0, 1), $\cos \dfrac{\pi}{2} = $ _____ and $\sin \dfrac{\pi}{2} = $ _____.

3. When radius line of circular plate is at 180° indicating the point C (–1,0), $\cos \pi = $ _____ and $\sin \pi = $ _____.

4. When radius line of circular plate is at 270° indicating the point D (0, – 1) which means $\cos \dfrac{3\pi}{2} = $ _____ and $\sin \dfrac{3\pi}{2} = $ _____

5. When radius line of circular plate is at 360° indicating the point again at A (1,0), $\cos 2\pi = $ _____ and $\sin 2\pi = $ _____.

Now fill in the table :

Trigonometric function	0	$\dfrac{\pi}{2}$	π	$\dfrac{3\pi}{2}$	2π	$\dfrac{5\pi}{2}$	3π	$\dfrac{7\pi}{2}$	4π
$\sin \theta$	–	–	–	–	–	–	–	–	–
$\cos \theta$	–	–	–	–	–	–	–	–	–

APPLICATION

This activity can be used to determine the values of other trigonometric functions for angles being multiple of $\dfrac{\pi}{2}$ and π.

Activity 11

OBJECTIVE

To inerpret geometrically the meaning of $i=\sqrt{-1}$ and its integral powers.

MATERIAL REQUIRED

Cardboard, chart paper, sketch pen, ruler, compasses, adhesive, nails, thread.

METHOD OF CONSTRUCTION

1. Paste a chart paper on the cardboard of a convenient size.

2. Draw two mutually perpendicular lines X'X and Y'Y interesting at the point O (see Fig. 11).

3. Take a thread of a unit length representing the number 1 along OX . Fix one end of the thread to the nail at 0 and the other end at A as shown in the figure.

4. Set free the other end of the thread at A and rotate the thread through angles of 90°, 180°, 270° and 360° and mark the free end of the thread in different cases as A_1, A_2, A_3 and A_4 , respectively, as shown in the figure.
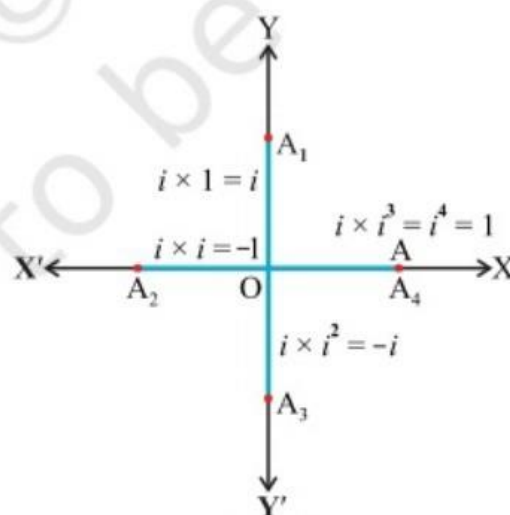
Fig. 11

DEMONSTRATION

1. In the argand plane, OA, OA_1, OA_2, OA_3, OA_4 represent, respectively, 1, i, -1, $-i$, 1.

2. $OA_1 = i = 1 \times i$, $OA_2 = -1 = i \times i = i^2$, $OA_3 = -i = i \times i \times i = i^3$ and so on. Each time, rotation of OA by 90° is equivalent to multiplication by i. Thus, i is referred to as the multiplying factor for a rotation of 90°.

OBSERVATION

1. On rotating OA through 90°, $OA_1 = 1 \times i =$ _____.

2. On rotating OA through an angle of 180°, $OA_2 = 1 \times$ __ $\times$ __ $=$ _____.

3. On rotation of OA through 270° (3 right angles), $OA_3 =$

    $1 \times$ _____ $\times$ _____$\times$ _____ $=$ _____.

4. On rotating OA through 360° (4 right angles),

    $OA_4 = 1 \times$ _____ $\times$ _____$\times$ _____ $\times$ _____ $=$ _____.

5. On rotating OA through n-right angles

    $OA_n = 1 \times$ _____ $\times$ _____$\times$ _____ $\times$ _____ $\times \ldots n$ times $=$
    _____.

APPLICATION

This activity may be used to evaluate any integral power of i.

Activity 15

OBJECTIVE

To construct a Pascal's Triangle and to write binomial expansion for a given positive integral exponent.

MATERIAL REQUIRED

Drawing board, white paper, matchsticks, adhesive.

METHOD OF CONSTRUCTION

1. Take a drawing board and paste a white paper on it.

2. Take some matchsticks and arrange them as shown in Fig.15.

Fig. 15

3. Write the numbers as follows:

      1 (first row)
      1 1 (second row)
      1 2 1 (third row)
      1 3 3 1 (fourth row), 1 4 6 4 1 (fifth row) and so on (see Fig. 15).

4. To write binomial expansion of $(a + b)^n$, use the numbers given in the $(n + 1)^{th}$ row.

DEMONSTRATION

1. The above figure looks like a triangle and is referred to as Pascal's Triangle.

2. Numbers in the second row give the coefficients of the terms of the binomial expansion of $(a + b)^1$. Numbers in the third row give the coefficients of the terms of the binomial expansion of $(a + b)^2$, numbers in the fourth row give coefficients of the terms of binomial expansion of $(a + b)^3$. Numbers in the fifth row give coefficients of the terms of binomial expansion of $(a + b)^4$ and so on.

OBSERVATION

1. Numbers in the fifth row are _____, which are coefficients of the binomial expansion of _____.

2. Numbers in the seventh row are _____, which are coefficients of the binomial expansion of _____.

3. $(a + b)^3 = $ ___ $a^3 + $ ___ $a^2b + $ ___ $ab^2 + $ ___ b^3

4. $(a + b)^5 = $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___.

5. $(a + b)^6 = $ ___ $a^6 + $ ___ $a^5b + $ ___ $a^4b^2 + $ ___ $a^3b^3 + $ ___ $a^2b^4 + $ ___ $ab^5 + $ ___ b^6.

6. $(a + b)^8 = $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___.

7. $(a + b)^{10} = $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___ $ + $ ___.

APPLICATION

The activity can be used to write binomial expansion for $(a + b)^n$, where n is a positive integer.

Activity 22

OBJECTIVE

To construct a parabola.

MATERIAL REQUIRED

Cardboard, white paper, sketch pen, pencil, compass, ruler etc.

METHOD OF CONSTRUCTION

1. Take a cardboard of a convenient size and paste a white paper on it.

2. Mark a point S on the white paper on the board (see Fig. 22).

3. Through S draw a line. Draw another line l perpendicular to the line through S at some distance k units to the left of S.
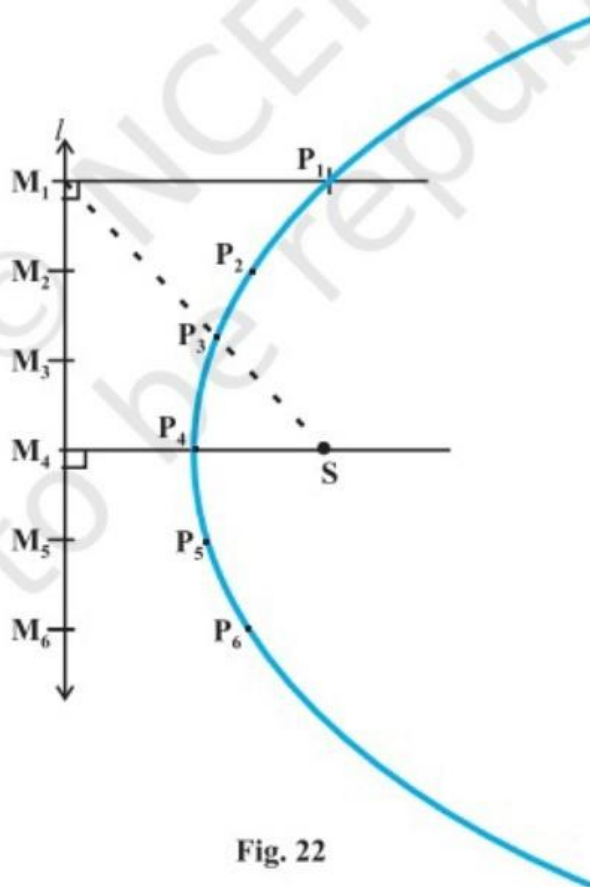

Fig. 22

4. Take any point M_1 on the line l. Draw the perpendicular to l at this point.

5. Join M_1S and draw perpendicular bisector of M_1S meeting the perpendicular through M_1 at the point P_1.

6. Take another point M_2 on the line l and repeat the process as explained in (5) above to obtain the point P_2.

7. Take some more points M_3, M_4, M_5, ... on the line l and repeat the above process to obtain points P_3, P_4, P_5, ..., respectively.

8. Draw a free hand curve through the points P_1, P_2, P_3, P_4, ... (see Fig. 22)

DEMONSTRATION

The points P_1, P_2, P_3, ... are such that the distance of each point from the fixed point S is same as the distance of the point from the line l. So, the free hand curve drawn through these points is a parabola with focus S and directrix l.

OBSERVATION

1. $P_1M_1 = $ _____ $P_1S = $ _____

2. $P_2M_2 = $ _____ $P_2S = $ _____

3. $P_3M_3 = $ _____ $P_3S = $ _____

4. $P_4M_4 = $ _____ $P_4S = $ _____

5. $P_5M_5 = $ _____ $P_5S = $ _____

6. The distance of the point P_1 from M_1 = The distance of P_1 from _____.

7. The distance between the points P_2 and M_2 = The distance of P_2 from _____.

The distance of the point _____ from M_3 = The distance of the point P_3 from _____.

8. Distances of the points P_1, P_2, P_3 .... from the line l are _____ to the distances of these points from the point S.

9. Therefore, the free hand curve obtained by joining P_1, P_2, P_3, ... is a _____ with directrix _____ and focus _____.

10. Distance of the vertex P_4 and S = _____.

11. Distance of the vertex of parabola from the directrix = _____.

APPLICATION

1. This activity is useful in understanding the terms related to parabola, like directrix, focus, property of the point on the parabola.

2. Parabolas have applications in Science and Engineering.

Activity 26

OBJECTIVE

To construct an ellipse when two fixed points are given.

MATERIAL REQUIRED

Rectangular cardboard, coloured chart paper, nails, strings, pen, pencil.

METHOD OF CONSTRUCTION

1. Take a rectangular cardboard and paste a chart paper on it.

2. Draw a horizontal line on the chart paper and mark two fixed points F_1 and F_2 on it such that the distance between them is (say) 6 cm. Fix two nails at the points F_1 and F_2.

3. Take a string whose length is more than the distance between the two fixed points (say) 9 cm.
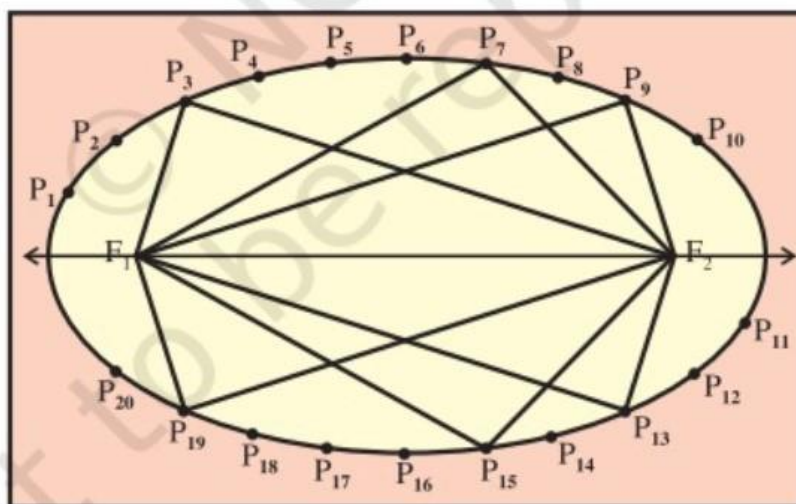
Fig. 26

DEMONSTRATION

1. Fix the two ends of the string at the two nails at F_1 and F_2.

2. With a pencil, stretch the string in the loop without slack and mark at least 10 points P_1, P_2, P_3, ..., etc., on both sides of the line segment joining F_1 and F_2.

3. Join all the points P_i, $i = 1, 2, ... 20$ to form an ellipse.

OBSERVATION

1. $P_1F_1 + P_1F_2 = $ _____ .

2. $P_2F_1 + P_2F_2 = $ _____ .

3. $P_3F_1 + P_3F_2 = $ ___ , $P_4F_1 + P_4F_2 = $ ___ , $P_6F_1 + P_6F_2 = $ ___ , $P_9F_1 + P_9F_2 = $ ___ .

4. $P_3F_1 + P_3F_2 = $ _____ $+ P_4F_2 = P_{19}F_1 + $ _____ .

5. Sum of the distances of each of the points P_1, P_2, P_3,... from the points F_1 and F_2 is _____ .

   So, the curve obtained is an _____ .

APPLICATION

This activity can be used to explain the property of an ellipse , i.e., the sum of the distances of any point on the ellipse from its two focie is constant and is equal to length of major axis.

NOTE

Construct another ellipse by taking different length of the string and also by changing the distance between F_1 and F_2.

26

Activity 28

OBJECTIVE

To find analytically $\lim\limits_{x \to c} f(x) = \dfrac{x^2 - c^2}{x - c}$

MATERIAL REQUIRED

Pencil, white paper, calculator.

METHOD OF CONSTRUCTION

1. Consider the function f given by $f(x) = \dfrac{x^2 - 9}{x - 3}$

2. In this case $c = 3$ and the function is not defined at $x = 3$.

DEMONSTRATION

1. Take some values of c less than $c = 3$ and some other values of c more than $c = 3$.

2. In both cases, the values to be taken have to be very close to $c = 3$.

3. Calculate the corresponding values of f at each of the values of c taken close to $c = 3$.

DEMONSTRATION : TABLE 1

1. Write the values of $f(x)$ in the following tables:

Table 1

x	2.9	2.99	2.999	2.9999	2.99999	2.999999
$f(x)$	5.9	5.99	5.999	5.9999	5.99999	5.999999

Table 2

x	3.1	3.01	3.001	3.0001	3.00001	3.000001
$f(x)$	6.1	6.01	6.001	6.0001	6.00001	6.000001

OBSERVATION

1. Values of $f(x)$ as $x \to 3$ from the left, as in Table 1 are coming closer and closer to _____.

2. Values of $f(x)$ as $x \to 3$ from the right, as in Table 2 are coming closer and closer to _____ from tables (2) and (3), $\lim_{x \to 3} f(x) = \dfrac{x^2 - 9}{x - 3} = $ _____.

APPLICATION

This activity can be used to demonstrate the concept of a limit $\lim_{x \to c} f(x)$ when $f(x)$ is not defined at $x = c$.

Activity 32

OBJECTIVE

To write the sample space, when a die is rolled once, twice --------

MATERIAL REQUIRED

A die, paper, pencil/pen, plastic discs, marked with 1, 2, 3, 4, 5 or 6.

METHOD OF CONSTRUCTION

1. Throw a die once. The number on its top will be 1, 2, 3, 4, 5 or 6.

2. Make a tree diagram showing its six branches with number 1,2, 3, 4, 5 or 6 (See Fig. 32.1)

3. Write the sample space of these outcomes.

4. Throw a die twice. It can fall in any of the 36 ways as shown in Fig. 32.2 by the tree diagram. Write the sample space of these outcomes.
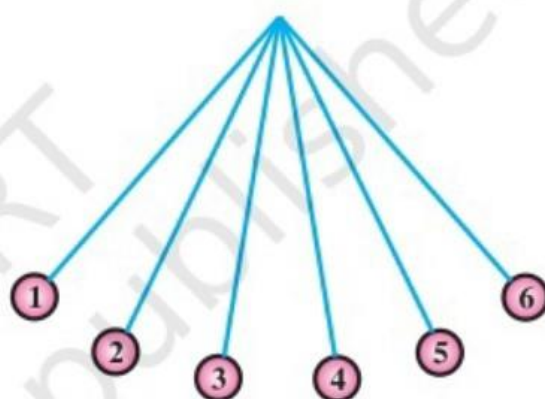
Fig 32.1
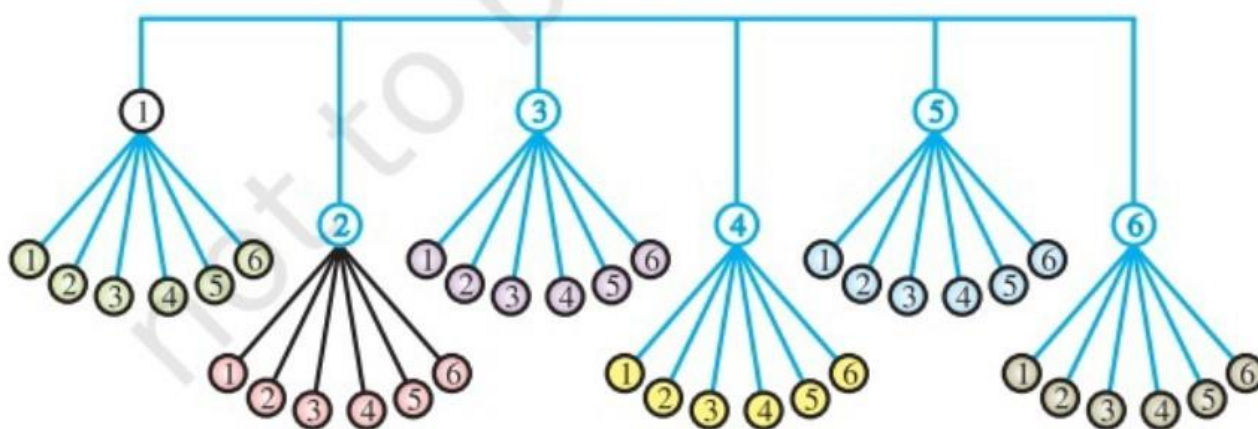
Fig 32.2

5. Repeat the experiment by throwing a die 3 times, and write the sample space of the outcomes using a tree diagram.

DEMONSTRATION

1. If a die is thrown once, the sample space is

$$S = \{1, 2, 3, 4, 5, 6\}. \text{ Number of elements in } S = 6 = 6^1$$

2. If a die is thrown twice, the sample space is

Sample space $S = \begin{cases} (1,1),(1,2),(1,3),(1,4),(1,5),(1,6),(2,1),(2,2),(2,3),(2,4),(2,5),(2,6) \\ (3,1),(3,2),(3,3),(3,4),(3,5),(3,6),(4,1),(4,2),(4,3),(4,4),(4,5),(4,6) \\ (5,1),(5,2),(5,3),(5,4),(5,5),(5,6),(6,1),(6,2),(6,3),(6,4),(6,5),(6,6) \end{cases}$

The number of elements in $S = 36 = 6^2$ and so on.

OBSERVATION

Number of elements in sample space when a die is thrown

Once = _____, Thrice = _____, Four times = _____

APPLICATION

Sample space of an experiment is useful in determining the probabilities of different events associated with the sample space.

Holiday Homework

Class 11   **Subject:-Physics**

1	State Hooke's law and hence define modulus of elasticity. Explain any two applications of knowledge of elasticity in detail.	
2	Draw stress-strain curve and explain each of the following terms in context with the curve (a) Proportionality limit (b) Elastic limit (c) Elastic behaviour (d) Plastic behaviour (e) Yield point	
3	Define terminal velocity. Find its expression	
4	State and prove Bernoulli's theorem. Give any 4 applications of it	
5	Explain pascal's law give any one of its applications	
6	Why smaller drops of mercury are spherical while bigger drops are oval	
7	What is the effect on viscosity of liquid and gases when their temperature rises	
8	Explain the rise of liquid in a tube of insufficient length. Will liquid overflow in it? Explain	
9	Show that path of projectile is parabolic in nature. Find formula for its range height and time of flight	
10	State parallelogram of vector addition. Derive the formula for resultant	
11	State principle of conservation of linear momentum. Give two examples to explain it	

12	State and prove work energy theorem.	
	A bullet of mass 50g is moving with 200m/s. it penetrates into a wooden block of mass 1.95kg. find the speed with which it moves. Estimate the loss of energy in the process.	
13	Define moment of inertia and radius of gyration. How are the two related	
14	State principle of conservation of angular momentum. Give two examples to explain it	
15	Define escape velocity. Find the formula for escape speed. Why moon doesn't have any atmosphere.	
16	At what height weight of a body will be reduced by 20% above earth' s surface	
17	Two wires of same material and length are stretched by the same force. Their masses are in the ratio 3:2. Find the ratio of their elongations.	
18	The young's modulus of the material of a wire is 6 x 10^{12} N/m^2 and there is no transverse strain in it. Find its modulus of rigidity?	
19	Explain elastic fatigue and elastic after effect.	
	20. Why the beams have 'I' shape cross section.	
20	NCERT exercise questions of first two chapters (volume 2) excluding additional excersises.	

1. A mixture contains two components A and B. The solubilities of A and B in water near its boiling point are 10 grams per 100 mL and 2 g per 100 mL respectively. How will you separate A and B from the mixture?

2. Describe the method to separate two substances which have different solubilities in a solvent X?

3. What is the effect of pressure on the boiling point of a liquid? How this fact is is utilized in the purification of compound?

4. How will you separate two miscible liquids which differ in their boiling points by 10 K?

5. Under what conditions a compound is purified by steam distillation?

6. How will you purify Benzoic acid containing sodium chloride as impurity?

7. A mixture contains nitrobenzene and benzoic acid. How can this mixture be separated into its constituents by technique of extraction using appropriate chemical reagent?

8. Two liquids A and B can be separated by the methods of fractional distillation. The boiling point of liquid A is less than boiling point liquid B. Which of the two liquids do you expect to come out first in the distillate? Explain.

9. You have a mixture of three liquids A , B and C. There is a large difference in the boiling point of A and the rest of the liquids i.e. B and C. Boiling point of liquid B and C are quite close. Liquid A boils at higher temperature than B and C and boiling point of B is lower than C. How will you separate the components of the mixture.

10. A liquid with high boiling point decomposes but it can be steam distilled for its purification. Explain how is it possible?

11. Benzoic acid is an organic compound. Its crude sample can be purified by crystallisation from hot water. What characteristics differences in the properties of benzoic acid and the impurity make the process of purification suitable?

12. By mistake an alcohol with boiling point 370 K was mixed with a hydrocarbon with boiling point 341 K. Suggest a suitable method for the separation of two components. Explain the reason for your choice.

13. Three students, Manish, Ramesh and Rajni were determining the extra elements present in an organic compound given by their teacher. They prepared the Lassaigne's extract independently by the fusion of the compound with sodium metal. Then they added solid ferrous sulphate and dilute Sulphuric acid to a part of Lassaigne Extract. Manish and Rajni obtained Prussian blue colours but Ramesh got Red colour. Ramesh repeated the test with the same Lassaigne Extract, but again got red colour only. They were surprised and went to their teacher and told him about their observation. Teacher asked them to think over the reason for this. Can you help them by giving the reason for this observation. Also write the chemical equations to explain the formation of the compounds of different colours.

14. For testing halogens in an organic compound with Silver Nitrate solution, sodium extract is acidified with dilute Nitric acid. What will happen if a student acidifies the extract with dilute sulphuric acid in place of nitric acid?

15. Calculate the pH of solution in which 0.37 g of $Ca(OH)_2$ dissolve in water to give 500ml of solution.

[Ans: 0.301]

16. The ionization constant at 298K is 1.8×10^{-4} Calculate the ionization constant of the corresponding conjugate base.

[Ans. 5.55×10^{-7}]

17. Ionic product of water at 363K is 10^{-12}. What will be the pH? Will it be the acidic?

18Write the anode, cathode and net cell reaction in the following cells. Which electrode would be positive terminal in each cell

    I.   Zn(s) I Zn²⁺ll Br₂lBr⁻IPt(s)

    II.   Cr(s) I Cr³⁺ II I₂/I⁻ | Pt(s)

    III. Pt(s) I H₂(g)IH⁺(aq) II Cu²⁺(aq) I Cu(s)

19 Identify the substance oxidised, reduced, oxidising agent and reducing agent for each of the following reactions:

- $2AgBr(s) + C_6H_6O_2(aq) \rightarrow 2Ag(s) + 2HBr(aq) + C_6H_4O_2(aq)$
- $HCHO(l) + 2[Ag(NH_3)_2]^+(aq) + 3OH^-(aq) \rightarrow 2Ag(s) + HCOO^-(aq) + 4NH_3(aq) + 2H_2O(l)$

20. Balance the following redox reaction by ion-electron method:

$$MnO_4{}^-(aq) + SO_2(g) \rightarrow Mn^{2+}(aq) + HSO_4{}^-(aq) \text{ (In acidic solution}$$
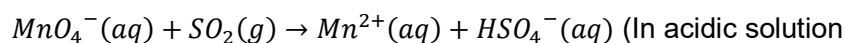
21 Write the net balanced ionic equation for the reaction of

$K_2Cr_2O_7$ with Na_2SO_3 in an acid solution to give chromium(III) ion and sulphate ion.

11th biology holiday homework

1. All student maintain your classwork notebook(with diagram), lab manual and do revision of pt2 exam Syllabus.

2. All student complete your lab Manual.

3. Prepare Project on topic of your choice.

Holiday Home Work for Winter Break

Class: 11 A, Subject- Computer Sc.

1. Make Practical file having at least 25 PYTHON programs.
2. Make the notes of chapter "Society Law and ethics".
3. Learn for Periodic Test 2.
4. Solve the sample question paper (01) provided in class.

कक्षा 11 शीतकालीन अवकाश गृह कार्य

1- हिन्दी अध्यापक-पद हेतु केंद्रीय विद्यालय काशीपुर को एक आवेदन पत्र लिखिए.

2- दैनिक भास्कर, काशीपुर के संपादक को पत्र लिखकर काशीपुर में बढ़ रहे अपराधों के प्रति चिंता प्रकट कीजिए.

3-.प्रत्येक विषय पर ४०० शब्दों का एक निबंध लिखिए –

(क) कामकाजी नारी और उसकी समस्याएँ   (ख) प्रदूषण   (ग) छुआछूत का अभिशाप

4-. निम्नलिखित प्रश्नों के उत्तर दीजिए-

(क) स्तम्भ लेखन का क्या आशय है?

(ख) जनसंचार का सबसे प्रमुख काम क्या है?

(ग) हिन्दी नेट-संसार की किन्हीं दो साहित्यिक पत्रिकाओं का नाम लिखिए.

(घ) बीट से क्या आशय है?

(ड) पत्रकारिता को परिभाषित कीजिए.

5-. "गुम होता बचपन पर फीचर लिखिए.

6- बेबी हालदार के बारे में लिखिए।

7-रजनी पाठ का सार लिखिए

8-जामुन का पेड़ -पाठ से आपको क्या संदेश मिलता है.

Kendriya Vidyalaya,Kashipur

Holiday Home Work -Winter Vacation 2023-24

Subject - English   Class - XI

1.Read any one novel of the following authors:-

A.Anita Desai

B.R.K.Narayan

(i) Write a book review and critical appreciation of the novel in 250-300 words

(ii) Write a charactersketch of any one character in the novel in 100-150 words.

2.Write summary of Father to son poem.

3.Do revision of P.T.2 syllabus.

WINTER HOLIDAY HOMEWORK

CLASS - 11

SUBJECT - GEOGRAPHY

1. Revision of the upcoming PT-2 Syllabus.

2. Solve the given sample paper in you notebook.

3. Prepare a chart on any one of the following:-

a) India's political map showing States, union territories and their capitals.

b) Atmosphere and it's layers .

Winter break Holidays Home work
Class XI C
Subject   History

Write the Answer of following questions either in separate Holidays Home work note book or in the Home work portion of your class Note book and submit it on 15.01.2024.

निम्नलिखित प्रश्नों के उत्तर या तो अलग हॉलिडे होम वर्क नोट बुक में या अपनी क्लास नोटबुक के होम वर्क वाले हिस्से में लिखें और 15.01.2024 को जमा करें।

1. Comment on any points of difference between the native peoples of South and North America. ?

दक्षिण और उत्तरी अमेरिका के मूल लोगों के बीच अंतर के किसी बिंदु पर टिप्पणी करें।

2.Why was the history of the Australian native peoples left out of history books?

ऑस्ट्रेलिया के मूल निवासियों का इतिहास इतिहास की किताबों से क्यों गायब कर दिया गया?

3. What is the Copernican revolution?

कोपर्निकन क्रांति क्या है?

4. Was there a European Renaissance in the 14th Century?

क्या 14वीं शताब्दी में यूरोपीय पुनर्जागरण हुआ था?

5. What was the humanist view of history?

इतिहास का मानवतावादी दृष्टिकोण क्या था?

6. Describe the science and philosophy of Arab contribution.

अरब योगदान के विज्ञान और दर्शन का वर्णन कीजिए।

7. On the given outline map of the world show the following
Italy , Mediterranean sea., South America, North America, Africa.

दिए गए विश्व के रूपरेखा मानचित्र पर निम्नलिखित को दर्शाइए

 इटली, भूमध्य सागर।, दक्षिण अमेरिका, उत्तरी अमेरिका, अफ्रीका

8.What did the 'frontier' mean to the Americans?

अमेरिकियों के लिए 'सीमा' का क्या मतलब था?

9.Explain the he Gold Rush, and the Growth of Industries.

गोल्ड रश , उद्योग और इसके विकास की व्याख्या करें।

10. Describe two features of early feudal society in France.

फ्रांस में प्रारंभिक सामंती समाज की दो विशेषताओं का वर्णन करें।

Thanks

Kendriya Vidyalaya Sangathan
Holiday Homework
Session: 2023-24
Class: XI
Subject: Economics

1. What is Investment ?

2. Name two important sources of secondary data.

3. Arrange the following series in an ascending order :
   8,14,5,4,2,25.

4. Who is known as father of statistics ?

5. What do you mean by average ?

6. What is a Lorenz Curve ?

7. The following table shows production of Electricity from different sources in India
   during 2008-09 to 2011-12.Present the data in a sub-divided and multiple bar diagram.

Year	Hydro-Electricity	Thermal-electricity	Total Production
2008-2009	46	64	110
2009-2010	49	72	121
2010-2011	48	82	130
2011-2012	51	89	140

8. Find out mode of the following series:

Age(Years)	0-20	20-40	40-60	60-80	80-100
No. of Persons	4	10	15	20	11

9. Mr. Ramesh has prepared a questionnaire to study social phenomena of people in a
   society . a question set by him in the questionnaire asks about the religion of the
   respondents and also wants them to comment on other religions . Is it ethically right to
   design such a question ?

10. Calculate missing if Median is 56 from the following data :

Marks Below	20-30	30-40	40-50	50-60	60-70	70-80
Number of Students	60	60	?	200	?	285

11. Define probable sampling.

12. State three economic and three non-economic activities.

13. The following are the sales figures of T.Vs of a firm 'V' during 2017-2022

Year	2017	2018	2019	2020	2021	2022
Sales in 1000 units	2155	2201	2250	2190	2095	2170

14. Convert the following series into less than and more than commulative frequency.

Daily Wages	No of Workers
100-110	10
110-120	6
120-130	9
130-140	11
140-150	3
150-160	1
TOTAL	40

15. Construct Pie diagram

Year	Arts	Commerce	Maths	Medical
2023	1400	1000	600	3000

Kendriya Vidyalaya Sangathan
Holiday Homework
Session: 2023-24
Class: XI
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15. Construct Pie diagram

Year	Arts	Commerce	Maths	Medical
2023	1400	1000	600	3000

CLASS XI COMM

HOLIDAY HW WINTER BREAK 2023-24

Accountancy

NCERT QUESTIONS FROM INCOMPLETE RECORDS 1-20

Business Studies

Notes on Small Business chapter.

Kendriya Vidyalaya,Kashipur

Holiday Home Work -Winter Vacation 2023-24

Subject - English   Class - XI

1.Read any one novel of the following authors:-

A.Anita Desai

B.R.K.Narayan

(i) Write a book review and critical appreciation of the novel in 250-300 words

(ii) Write a charactersketch of any one character in the novel in 100-150 words.

2.Write summary of Father to son poem.

3.Do revision of P.T.2 syllabus.

कक्षा 11 शीतकालीन अवकाश गृह कार्य

1- हिन्दी अध्यापक-पद हेतु केंद्रीय विद्यालय काशीपुर को एक आवेदन पत्र लिखिए.

2- दैनिक भास्कर,काशीपुर के संपादक को पत्र लिखकर काशीपुर में बढ़ रहे अपराधों के प्रति चिंता प्रकट कीजिए.

3-.प्रत्येक विषय पर ४०० शब्दों का एक निबंध लिखिए –

(क) कामकाजी नारी और उसकी समस्याएँ   (ख) प्रदूषण   (ग) छुआछूत का अभिशाप

4-. निम्नलिखित प्रश्नों के उत्तर दीजिए-

(क) स्तम्भ लेखन का क्या आशय है?

(ख) जनसंचार का सबसे प्रमुख काम क्या है?

(ग) हिन्दी नेट-संसार की किन्हीं दो साहित्यिक पत्रिकाओं का नाम लिखिए.

(घ) बीट से क्या आशय है?

(ड) पत्रकारिता को परिभाषित कीजिए.

5-. "गुम होता बचपन‌ पर फीचर लिखिए.

6- बेबी हालदार के बारे में लिखिए।

7-रजनी पाठ का सार लिखिए

8-जामुन का पेड़ -पाठ से आपको क्या संदेश मिलता है.