MALOSHREE NIYOGI

FOR GOD AND COUNTRY

ST. LAWRENCE HIGH SCHOOL

THIRD TERM – 2019

Sub : ALGEBRA AND GEOMETRY **Class : VI** **F.M. : 90**

Duration : 2 HRS 30 MINS **MODEL ANSWER** **Date : 25.11.19**

GROUP – A

1. **MCQ** [1x5=5]

1.1 Four times a number taken away from from 40 is 5 more than the number itself. The number is : Ans: **a) 7**

1.2 A quadrilateral whose diagonals are equal and bisect each other at right angles is a Ans: **d) Square**

1.3 A figure is said to be regular if its sides are equal in length and angles are equal in measure. Can you identify the regular quadrilateral? Ans: **c) Square**

1.4 A cone has Ans: **a) 1 vertex**

1.5 On simplification $-3x^2 - [2x^2 - (4x^2 + y^2)]$ the value is Ans: **a)** $\mathbf{y^2 - x^2}$

2. **State TRUE or FALSE for the following statements** [1x8=08]

a) The line segment joining two points on a circle is called an arc. **ANS: FALSE**

b) All diameters are chords. **ANS: TRUE**

c) A circle has fixed number of radii. **ANS: FALSE**

d) The area lying between two radii is a tangent. **ANS: FALSE**

e) Twice a circle is a semi circle. **ANS: FALSE**

f) All sides of a parallelogram are of equal length. **ANS: FALSE**

g) The opposite sides of a trapezium are parallel. **ANS: FALSE**

h) All the sides of a rhombus are of equal length. **ANS: TRUE**

3. **Fill in the blanks:** [1x11=11]

a) $5b^2 + (-3b^2) = \underline{2b^2}$

b) $4m + 2m - m + 2m - 2m = \underline{5m}$

c) $(4p + q) - (p - q) = \underline{3p + 2q}$

d) A number $\boldsymbol{a}$ less than 16 equals 10, then $\boldsymbol{a}$ is 6

e) If one-fourth of an number is 24, then the number is 96

f) Eight times of a number is 32. The number is 4

g) A quadrilateral with all sides and all angles equal is a square

h) A quadrilateral with four equal sides and no right angles can be called a rhombus

i) A quadrilateral with exactly two sides parallel is a trapezium

j) The diagonals of this quadrilateral are equal but not perpendicular. The quadrilateral is a rectangle

k) All rectangles, squares and rhombus are parallelogram, but a trapezium is not.

4. **Answer the following questions:** [1x1=01]

a) Write the following statements in equation form : Quotient of m divided by 6 is 5.

Ans: $\frac{m}{6}=5$

GROUP – B

5. **Answer the following question (all)** [2x5=10]

a) Subtract $x^2 - 3xy + y^2$ from $4xy - 3x^2 - 2y^2$ Ans: $- 4x^2 + 7xy - 3y^2$

b) Solve: $x + 21 = 20$ Ans : $x = 20 - 21 = -1$

c) Draw the line/lines of symmetry in the following letters of the English alphabet: (a) H (b) I Ans : Construction

d) Draw a line of symetry for the word DOCK Ans : Construction

e) Write the shape of (a) a clown's cap (b) your geometry box

Ans : a) Cone b) Cuboid

6. **Answer the following questions (any 5)** [3x5=15]

a) Simplify: $(2x - y) + (2y - 3x) + (3y - x)$

Ans : $(2x - y) + (2y - 3x) + (3y - x) = 2x - y + 2y - 3x + 3y - x = - 2x + 4y$

b) Solve: (a) $6y = 0$ Ans : a) $y = 0$ (b) $11n = 1.21$ Ans: $n = 1.21/11 = 0.11$ [1+2]

c) Give reason for the following: A square can be thought of as a special rhombus. Ans : A square can be thought of as a special rhombus because all its sides are equal and its opposite sides are parallel

d) Draw a circle of radius 4.5 cm and mark any two points A and B which contain A in the interior and B in the exterior of the circle. Ans : Construction [2+1]

e) Solve: $5(x + 3) = 25$

Ans: $5(x + 3) = 25$ or, $5x + 15 = 25$ or, $5x = 25 - 15$ or, $5x = 10$ or, $x = 10/5$ or, $x = 2$

f) Solve: (a) $-4r = 0.4$ Ans : $- 0.4/4 = - 0.1$ (b) $\frac{p}{8} = 4$ Ans: $p = 4x8 = 32$ [2+1]

g) Name the different plane shapes needed to draw the net of (a) a cube (b) a traingular prism (c) A Triangular pyramid Ans : a) Square b) Triangle and rectangle c) Triangles

GROUP – C

Answer the following questions (any 8) [5x8=40]

7. (a) $- \{-2b - (3b + 7c)\}$ Ans : $- \{ -2b - 3b - 7c\} = - \{5b - 7c\} = 5b + 7c$ [3]

(b) 6a – (5a -2x) Ans: 6a – (5a -2x) = 6a – 5a + 2x = a + 2x [2]

8. Solve the following equation and verify your answer: 5(2x -1) = 7(9 –x) [3+2]

   Ans : 5(2x -1) = 7(9 –x) or, 10x – 5 = 63 – 7x or, 17x = 68 or, x = 68/17 = 4

9. One-half of a number added to one-third of it gives 25, find the number.

   Ans: ½ x + 1/3 x =25 or, 5/6x = 25 or, x = 25 x 6/5 = 30

10. One number is 6 more than a second number. The sum of the two numbers is 16. Find the numbers.

    Ans: the two numbers are x and (x+6)
    BTP, x + (x+6) = 2x + 6 = 16 or, 2x = 16-6 or, 2x = 10 or, x = 10/2 or, x = 5
    Thus the numbers are 5 and (5+6) or, 5 and 11

11. Write the number of lines of symmetry for the following figures/shapes:(a) Line (b) Angle (c) Line segment (d) eqilateral triangle (e) Square

    Ans: a) infinite b) One c) Two d) Three e) Four

12. Name the solid(s) that have: (a) 4 faces (b) 1 surface (c) 4 vertices (d) no vertices (e) 1 edge Ans : a) Triangular pyramid b) Sphere c) Triangular pyramid d) Sphere e) Cone

13. (a) Name the solid(s) that have 5 faces and 5 vertices

    Ans : Square pyramid and rectangular pyramid

    (b) Complete the following table:

	Name of solids	Number of faces (F)	Number of Vertices (V)	Number of edges (E)	Eulers formula F+ V -E
(i)	Triangular prism	**5**	**6**	**9**	**2**
(ii)	Triangular pyramid	**4**	**4**	**6**	**2**

14. Draw a line segment of length 6.8 cm. and draw its perpendicular bisector by using ruler and compasses. Ans : Construction

15. Draw an angle of 135^{o} , using a pair of compasses. Ans : Construction

16. Draw a line segment OA = 8 cm. Using set squares, construct angle AOB = 90^{o}, such that OB = 10 cm. Join A and B. Measure the length of AB. Ans : Construction