U. James Lyn. 23/4/2019.

FOR GOD AND COUNTRY

ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION
FIRST TERM EXAMINATION – 2019
CLASS –VI

SUBJECT – ALGEBRA & GEOMETRY (Model Answers)

F.M. - 90
DATE -23.04.19

Group – A

A. **Choose the correct answer:**

1. The value of $(3)^0$ is
   a. 1
2. The value of $(a^p \times a^q)$ is
   b. a^{p+q}
3. The value of (b+a+9) when b = -3, a = 10 is
   c. 16
4. Which of the following can be measured?
   d. Line segment.
5. The sum of the adjacent angles on one side of a line is
   d. 180°

B. **Fill in the blanks:**

1. The square of (-5) is 25
2. $4/5^{th}$ of a straight angle is 144 °
3. Angles of 35° & 55° are complementary angles.
4. Value of $10^{12} \div 10^9$ is 10^3
5. The coefficient of x in $-1/3a^2$xis $-1/3a^2$

C. **State true or false:**

1. $2^5=16$ False
2. 3/5 is a variable. False
3. The value of 2^0 is 1. True
4. Lines which meet each other at a point are called intersecting lines. True
5. The line between the ceiling and a wall in your classroom is a vertical line. False

D. **Draw the following using the inner scale of the protractor:**

   i. 162°
   ii. 156°
   iii. 126°
   iv. 75°
   v. 23°

Ans : Construction.

E. **Draw the following using the outer scale of the protractor:**

   i. 20°
   ii. 65°
   iii. 120°

iv. 140°

v. 165°

Ans : Construction.

Group B

I. Write the following phrases using symbols:

	Using words	Using symbols
i)	8 more than p	p + 8
ii)	14 less than x	x - 14
iii)	10 times a	10a
iv)	Three-fourth of p	$\frac{3}{4}$p
v)	t is greater than 15	t > 15

II. Answer the following questions :

1.Write down the degree of the polynomial : $4p^2 + 5p^3 + 7p^5$

Ans : 5

2. Find the value of : $(-2)^9$

= (-2) X (-2) X (-2) X (-2) X (-2) X (-2) X (-2) X (-2) X (-2) = -512 (Ans).

3. Find the cube of : $-\frac{7}{9}$

= $(-\frac{7}{9})$ X $(-\frac{7}{9})$ X $(-\frac{7}{9})$ = $(-\frac{343}{729})$ (Ans)

4. Find the value of the expression $\frac{ab}{c}$, if a = 5 , b = 6 and c = 10

Sol :Putting the values we get : $\frac{5\ X\ 6}{10} = \frac{30}{10} = 3\ Ans.$

5. Write down the algebraic expression whose terms are :

a)$-4p^2$, $3q^2$, -7pq , -6

Ans : $-4p^2 + 3q^2$ - 7pq - 6.

b) $\frac{2}{3}a^2$, - $\frac{4}{7}$ ab , $3b^2$, -89

Ans : $\frac{2}{3}a^2$ - $\frac{4}{7}$ ab + $3b^2$ - 89

6. Find the complement and supplement of the angle 80^0.

Sol : Complement of angle $80^0 = 90^0 - 80^0 = 10^0$

Supplement of angle $80^0 = 180^0 - 80^0 = 100^0$

7. Through how many degrees does the hour hand of a clock turn in

a) 1 minute Ans : $\frac{1}{2}^\circ$ b) 10 minutes Ans: 5^0 and c) 30 minutes Ans : 15^0

Group – C

I . Answer the following questions: (Any 8)

1. Add : $47^0 28' 55''$ and $27^0 35' 49''$

$$47^0 28' 55''$$

$$27^0 35' 49''$$

$$74^0 63' 104''$$

Now, out of 104" , 1' will be added to 63' to make it 64' and 44" will remain.

Out of 64' , 1° will be added to 74° to make it 75° and 4' will remain.

Ans : $75^0 4' 44''$

2. Subtract : $39^0 39'$ *from* $50^0 15'$

We need to borrow 1° from 50° to make it 49° and so 60' will be added to 15' to make it 75'.

$$49^0 75'$$

$$39^0 39'$$

$$10^0 36'$$

Ans : $10^\circ 36'$

3. Draw an angle 142^0 using the outer (clockwise) scale of the protractor.

Sol : Construction.

4. Evaluate 3a + 2b + c , when a = 1.2 , b = 3.7 and c = 1.4

Sol : 3 X 1.2 + 2 X 3.7 + 1.4 = 3.6 + 7.4 + 1.4 = 12.4 (Ans)

5. Identify monomials , binomials and trinomials from the following :

a) 4m + 12n Ans: Binomial. b) a - $4b^2 + 7c^3$ Ans : Trinomial. c) $7p^5$ Ans : Monomial. d) 5x – 4y Ans : Binomial. e) $7p^2 + 2q^2$ - 4pq Ans: Trinomial

6. Find the angles when two angles are supplementary and the larger is 58^0 more than the smaller.

Sol : Let the smaller angle be x° , then by the problem the other angle will be $(x+ 58)^\circ$

Therefore, $x^{\circ} + (x+ 58)^{\circ} = 180^{0}$ or, $2x + 58^{\circ} = 180^{0}$ or, x = Therefore the smaller angle is 61^{0}. The other angle will be $61^{0} + 58^{0} = 119^{0}$.

7. Find the number of degrees in :

a) $\frac{1}{5}$ of a right angle.

Ans : $\frac{1}{5}$ X $90^{0} = 18^{0}$

b) $\frac{4}{9}$ of a straight angle.

Ans : $\frac{4}{9}$ X $180^{0} = 80^{0}$

8. Simplify : $- (-6)^{3} + (-5)^{4} - (2)^{6}$ X 10^{2} X $(\frac{28}{39})^{0}$

Sol : - (- 216) + (625) – 64 X 100 = - 5559 (Ans).

9. Find the value of the expression 2x – y + 3z , if x = 4 , y = 7 and z = 2

Sol : 2 X 4 – 7 + 3 X 2(putting the values) = 8 – 7 + 6 = 7 (Ans)

10. Draw an angle 160^{0} using the inner (counter – clockwise) scale of the protractor.

Sol : Construction.