PROVINCIAL DEPARTMENT OF EDUCATION - NORTH WESTERN PROVINCE

First Term Test 2018

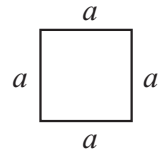# Mathematics

Grade 08

Time : 2 hours

Name / Index No.

Part I

- **Answer all questions on this paper itself.**
- **Each question carries 2 marks.**
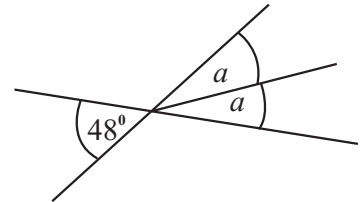
01. Which square number is 16?

02. Find the perimeter of the given figure in terms of 'a'.

03. What is the complement of 40^0?

04. What is the additive inverse of (-2)?

05. Find the value of a.

06. Find the value of $(-3)^3$.

07. Find the highest common factor of $4x^2, 2xy$.

08. Find the value, $(-3) - (-5)$

09. Filling the cage with suitable value,

$$(-12) \boxed{} = 4$$

10. Write $4x^2 + 8xy$ as a product of two factors.

11. Represent 3^2 by a square shaped dot arrangement.

12. Find the value of $\sqrt{(2 \times 3 \times 5)^2}$
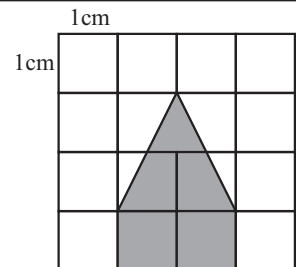
13. Write 48 as a product of prime factors.

14. Circle the suitable digits which can be taken as the unit placed digit of a perfect square.

    2   4   3   5   7

15. Subtract,

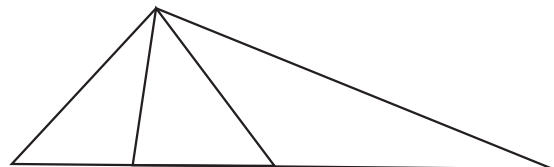 | t | Kg |
    |---|-----|
    | 3 | 055 |
    | - 2 | 425 |

16. In the length of a side of a small square of following figure is 1cm, find the area of shaded part in square centimeters.

    1cm
    1cm

17. Represent the ration of Rs. 3 and 50 cents in the simplest form.

18. Find the value 16 t 45 Kg   5

19. Find the number of triangles in the given figure.

20. Give $\dfrac{5}{2}$ as a percentage.

02

- **Answer to the first question and 04 other questions.**
- **First question carries 16 marks and other questions carry 11 marks each.**

01. (a) You engaged in activities on constructing solid with your teacher in the class room.
    - (i) Name two solids that you constructed using equi-lateral triangles only.   (04 marks)
    - (ii) Write name of an instrument which used to take measurements, when constructing these solids.   (02 marks)
    - (iii) Name two platonic solids.   (02 marks.)

    (b) Following figure is a net constructed using equi-lateral triangles and squares.
    - (i) In the length of one side is 3cm, find the perimeter of the figure. (02m.)
    - (ii) What is the name of the solid which could be constructed using the net shown in the figure.   (02 marks)
    - (iii) Write the Euler's relationship for solids.   (02 marks)
   - (iv) Show that solid mentioned in (b) (ii) satisfies the Euler's relationship.   (02 marks)
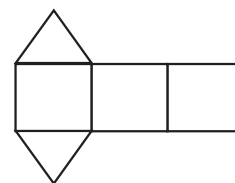
02. (a) Factorize,
    - (i) $4p - 2$ (01 mark)
    - (ii) $3a^2 + 6ab + 9b^2$ (02 marks)

    (b) (i) Express, $5.45\,\mathbf{t}$ in Kg s.   (02 marks)
    - (ii) Add,

t	Kg
4	25
+ 2	95

(02 marks.)

    - (iii) Weight of a sack of paddy is 65kg, Total weight of a lorry loaded with 120 such sackes of paddy is 14.2 **t**. Find the weight of the lorry before loading the paddy.   (04 marks)

03. (a) Find the perimeters of given figures,

(i)
```
     2cm
   ┌────┐
   │    │
   │ 4cm│
   │    │
   │    └──┐
   │   2cm │
   └───────┘
     4cm
```
(02m.)

(ii)
```
        /\
       /  \  6cm
      /    \
     |      |
     |      |
     |_____|
       2cm
```
(02 marks.)

    (b)

    ```
    ────────────────        ────────────────
          A                        B
    ```
         48cm   48cm

    A and B are parts of metallic wire with equal lengths of 48cm.
    - (i) Student makes a equai-lateral triangle using the wire. Draw a rough sketch of this triangle and mark the lengths of its side.   (02 marks)
    - (ii) Then the student makes a rectangle using the wire B. The length of that rectangle is 16cm. Draw a rough sketch of this rectangle and mark its sides.   (02 marks)
    - (iii) Student makes a combined plane figure, by removing one side of the triangle in (i) and joining the rest to the length side of the rectangle in (ii). Draw the rough sketch for this combined figure and find the perimeter of it.   (03 marks)

04. (a) (i) Name a pair of vertically opposite angles. (02 marks)

   (ii) Find the value of a^0 (02 marks)

   (iii) Find the value of x^0 (02 marks)

   (iv) "x^0 and a^0 is a pair of supplementary angles." Do you agree with this statement? Give reasons. (02 marks)

   (b) What are the 3 essential requirements needed to name a pair of angles as a pair of adjacent angles. (03 marks)

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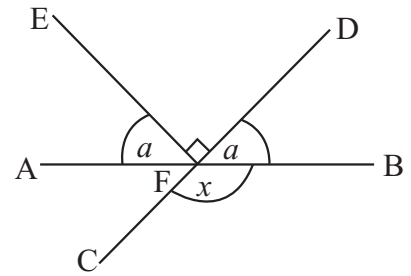
05. (i) Write next two terms in 4, 7, 10 (01 mark)

   (ii) Following note was prepared by a student, to find the general term of a number pattern. Copy it on the paper and fill the blank cages.

   First term ·······> 2 x 1 - 1 = 1

   Second term ·······> ☐ x 2 - 1 = 3 (01 mark)

   Third term (01m..)···> 2 x ☐ - 1 = 5

   Fourth term ·······> ☐ x ☐ - 1 = 7 (01 mark)

   n th term ·······> ☐ x ☐ - ☐ = ☐ (02 marks)

   (iii) Find the 21st term of it? (02 marks)

   (iv) The general term of the triangular number pattern is $\dfrac{n(n+1)}{2}$. Find the 15th triangular number. (03 marks)

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06. (a) (i) Find the value of (-3) + (+5) (02 marks)

   (ii) Find the value of (-3) x (-2) + (-3) x (+4) (02 marks)

   (iii) Rewrite the following by filling suitable values,

   $\dfrac{(-15)}{(.......) - (+8)}$ (01 mark)

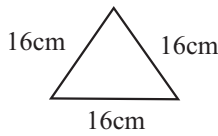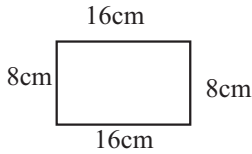   = (.......) + (-8) (01 mark)

   = (-11)

   (b) (i) Represent 81^{p^2} as a power product. (02 marks)

   (ii) if $x = -1$ and $y = +2$, Find $x^2 y + 3y^2$ (03 marks)

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07. (a) Simplify,

   (i) $2(a - 3)$ (01 mark)

   (ii) $-4(2a - 3b) - 5b$ (02 marks)

   (iii) $5x(x + 2) - 2(x - 2)$ (03 marks)

   (b) Student bought **'p'** number of blue pens, **'q'** number of red pens and **'r'** number of blank pens from a bookshop.

   (i) Write an algebraic expression to represent the total number of pens he bought. (01 mark)

   (ii) If one pen costs, Rs. 2p, write the total cost in a an algebraic expression. (02 marks)

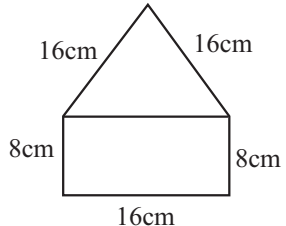   (iii) When $p = 6$, $q = 2$, $r = 4$ find the total amount he paid. (02 marks)
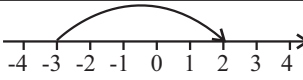
Answer Sheet

Part I		

01.	4th square		02
02.	a + a + a + a	01	
	4a	01	02
03.	50^0		02
04.	+2		02
05.	$2a = 48^0$	01	
	$a = 24^0$	01	02
06.	(-3) x (-3) x (-3)	01	
	-27	01	02
07.	2x		02
08.	-3		02
09.	(-3) - (-5)		
	(-3) + (+5)		02
	+2		
10.	4x (x + 2y)		02
11.	O O		02
	O O		
	O O		
12.	$\sqrt{900}$ or 2 x 3 x 5	01	
	30	01	02
13.	48 = 2 x 2 x 2 x 2 x 3		02
14.	2 ④ 3 ⑤ 7	1+1	02
15.	0t 630kg		02
16.	4		02
17.	6 : 1		02
18.	3t 209kg		02
19.	6		02
20.	250%		02
			40

Part II		

01.	(a)	(i)	Octa hedron Icosahedron Petrahegeon (any two answer)		04
		(ii)	Suitable answer		02
		(iii)	Suitable answer		02
	(b)	(i)	3 x 10	01	
			30cm	01	02
		(ii)	Triangular Prism		02
		(iii)	V + F = E + 2		02
		(iv)	V + F = E + 2		
			6 + 5 = 9 + 2		
			11 = 11		02
					16

02.	(a)	(i)	2(2p - 1)		01
		(ii)	$3(a^2 + 2ab + 3b)^2$		02
	(b)	(i)	5+45 x 1000	01	
			5450kg	01	02
		(ii)	6t 120kg		02
		(iii)	120 x 65		
			= 7800kg	01	
			= 7.8t	01	02
			Lorry wight = 14.2 - 7.8	01	
			= 6.4t	01	02
					11

03.	(a)	(i)	2 + 4 + 2 + 2 + 4 + 6	01	
			= 20cm	01	02
		(ii)	6 + 6 + 2 + 6 + 2 + 6 + 2	01	
			= 30cm	01	02
	(b)	(i)			02
		(ii)			02

16cm 16cm
16cm

16cm
8cm 8cm
16cm

(iii)

16cm   16cm

8cm   8cm

16cm   01

16 + 16 + 8 + 16 + 8   01

= 64cm   01   03

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04. (a) (i) $B\hat{F}D$, $A\hat{F}C$ or
$A\hat{F}D$, $C\hat{F}B$ 02

(ii) $a + a + 90^0 = 180^0$

$2a = 90^0$ 01

$a = 45^0$ 01   02

(iii) $x = a + 90^0$ 01

$x = 135^0$ 01   02

(iv) Supplementary angles   01

$a^0 + x^0 = 180^0$ 01   02

(b) • Common verpex   01

• Common arm   01

• Two angle two side of the
common arm   01   03

11

05. (i) 13, 16   01
(two answers compulsory)

(ii) | 2 | 01

| 3 | 01

| 2 | | 4 | (04 only)   01

| 2 | | n | | 1 | | 2n - 1 | 01+01   05

(iii)   2n - 1
2 x 21 - 1
42 - 1   01
41   01   02

(iv) $\dfrac{15(15 + 1)}{2}$ 01

15 x 8   01

120   01   03

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06. (a) (i)

-4 -3 -2 -1 0 1 2 3 4   01
(-3) + (+5) = 2   01   02

(ii) (+6) + (-12)   01
-6   01   02

(iii) +5   01
-3   01   02

(b) (i) 9^2xp^2 01
$(9p)^2$ 01   02

(ii) $(-1)^2 \times (2) + 3 \times (2)^2$ 01
$1 \times 2 + 3 \times 4$ 01
14   01   03

11

07. (a) (i) $2a = 6$ 01

(ii) $-8a + 12b - 5b$ 01
$-8a + 7b$ 01   02

(iii) $5x^2 + 10x - 2x + 4$ 02
$5x^2 + 8x + 4$ 01   03

(b) (i) $p + q + r$ 01

(ii) $2p(p + q + r)$ or
$2p^2 + 2pq + 2pr$ 02

(iii) $2 \times 6(6 + 2 + 4)$ 01
Rs. 144   01   02

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