

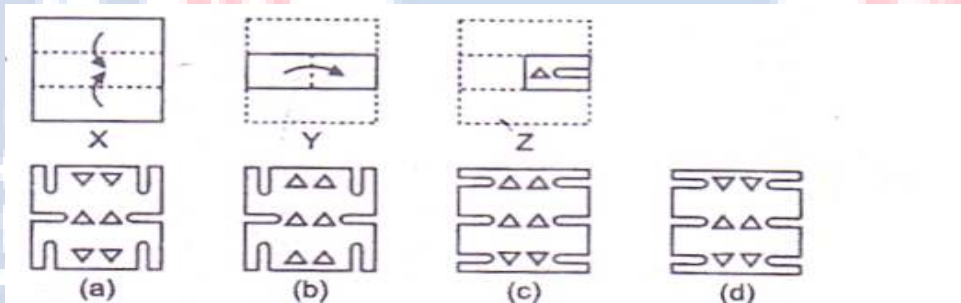
# International Foundation Mathematics Olympiad(IFMO)

## CLASS 9

### WORKSHEET – 5

## SECTION-A ( Logical Reasoning )

1. In the following question, a set of three figures X,Y,Z have been given, showing a sequence in which a paper is folded and finally cut from a particular section. Below these figures a set of answer figures marked (a, b, c, d) showing the design which the paper actually acquires when it is unfolded are given. You have to select the answer figure which most closely resembles the unfolded piece of paper.

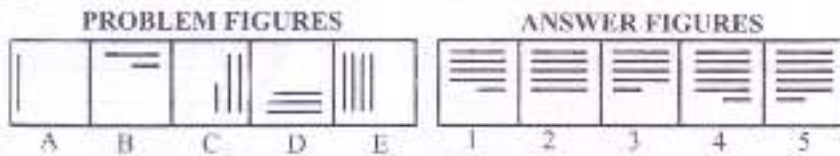


2. Unscramble the letters of the words given and find odd one
- AH
  - NVESU
  - NOMO
  - MSRA
3. In the following figure, which symbol is opposite to the arrow.

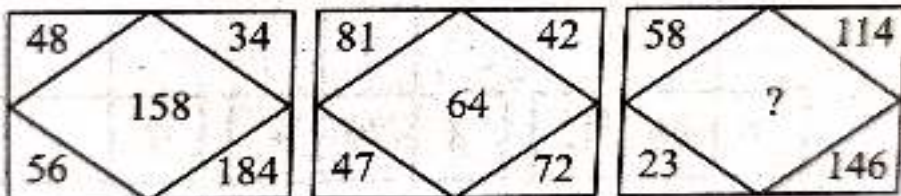


- Dot
  - Triangle
  - Circle
  - Cross
4. This type of problem on series consists of five figures numbered A,B,C, D and E forming the set of problem figures, followed by five other figures numbered 1,2,3,4 and 5 forming the set of Answer figures. The five consecutive problem figures form a definite sequence and it is required to select one of the figures

from the set of Answer figures which will continue the same sequence.



5. In the following questions a set of figures carrying certain characters is given. The characters in each set follow a similar pattern. What is the missing character in each case?



- a) 67  
b) 57  
c) 87  
d) 97
6. If signs + & x are interchanged and numbers 4 & 5 are interchanged then which of the following is correct?  
a)  $5 \times 4 + 20 = 40$   
b)  $5 \times 4 + 20 = 104$   
c)  $5 \times 4 + 20 = 85$   
d)  $5 \times 4 + 20 = 95$
7. If the given words are arranged as in dictionary, then which word comes at 3<sup>rd</sup> position?  
a) Schedule  
b) Scorpion  
c) Scissors  
d) Science
8. If eye is called hand, hand is called mouth, mouth is called ear, ear is called nose and nose is called tongue then which of following is used for finding a smell?  
a) Nose  
b) Tongue  
c) Ear  
d) Mouth
9. There is a certain relation between two given words on one side of :: and one word is given on another side of :: while another word is to be found from the given alternatives having the same relations with this word as the given pair has. Select the best alternative.  
Darwin : Evolution :: Archimedes : ?  
a) Lubrication  
b) Friction  
c) Liquids  
d) Buoyancy
10. There is a series of numbers which follow some definite order. Find the

missing term and complete the series.

5, 12, 7, 15, 8, 18, 10, ?

a) 10

c) 21

b) 11

d) 28

**SECTION-B ( Day to Day Mathematics )**

11. Cube root of  $\frac{27}{x^3} - \frac{8}{x^6} - \frac{54}{x^4} + \frac{36}{x^5}$  will be.

a)  $\frac{3}{x} - \frac{2}{x^2}$

c)  $\frac{3}{x} + \frac{2}{x^2}$

b)  $\frac{3}{x^2} - \frac{2}{x}$

d)  $\frac{-3}{x} + \frac{2}{x^2}$

12. If  $(x^2 + x + 1)$  is a factor of  $3x^3 + 8x^2 + 8x + 3 + 5k$ , then  $k =$

a)  $-\frac{2}{5}$

c)  $\frac{2}{5}$

b)  $-\frac{5}{2}$

d) 0

13. If P, Q and R are the vertices of a triangle and coordinates of points are (0,4) (0,0) and (3,0) respectively then the perimeter of  $\Delta PQR$  will be :

a) 12 units

c) 5 units

b) 10 units

d) 13 units

14. The length of diagonal of a square whose two vertices are P(0,-3) and Q(0,4) is (units)

a)  $7\sqrt{2}$

c)  $4\sqrt{2}$

b)  $3\sqrt{2}$

d)  $5\sqrt{2}$

15. If the equation  $(x + 3y) - (3x + y) + (x - y) = (a - b)$ , then which of the following is a solution of the above equation?

a) (a, b)

c) (-b, -a)

b) (b, a)

d) (b, -a)

16. The numbers of lines that can be drawn through 4 distinct points in a plane if none of these three points are collinear.

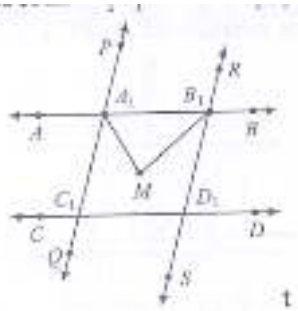
a) 12

c) 8

b) 6

d) 4

17.  $AB \parallel CD$  and  $PQ \parallel RS$ , then the measure of  $\angle A_1MB$ , is (Here  $A_1M$  and  $B_1M$  are the bisectors of  $\angle MA_1B_1$  and  $\angle MB_1A_1$  respectively).



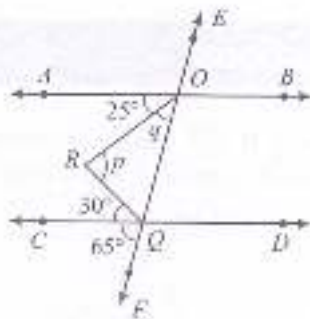
a)  $70^\circ$

c)  $90^\circ$

b)  $85^\circ$

d)  $12^\circ$

18. AB and CD are parallel lines and transversal EF intersects them at P and Q respectively. If  $\angle APR = 25^\circ$ ,  $\angle RQC = 30^\circ$  and  $\angle CQF = 65^\circ$  then



a)  $p = 55^\circ$ ,  $q = 40^\circ$

c)  $p = 35^\circ$ ,  $q = 60^\circ$

b)  $p = 50^\circ$ ,  $q = 45^\circ$

d)  $p = 60^\circ$ ,  $q = 35^\circ$

19. If  $\angle P$ ,  $\angle Q$ ,  $\angle R$ ,  $\angle S$  of a quadrilateral PQRS taken in order are in the ratio  $3 : 7 : 6 : 4$ , then PQRS is a

a) Kite

c) Rhombus

b) Trapezium

d) Parallelogram

20. ABCD is a  $\parallel^{gm}$  and X, Y are the mid-points of sides AB and CD respectively, then

a) AXCY is rectangle

c) AXCY is parallelogram

b) AXCY is square

d) AXCY is rhombus

21. If AD is median of  $\triangle ABC$  and P is a point on AC such that  $ar(\triangle ADP) : ar(\triangle ABD) = 2 : 3$ , then  $ar(\triangle PDC) : ar(\triangle ABC)$  is

a)  $1 : 5$

c)  $5 : 1$

b)  $1 : 6$

d)  $3 : 5$

22. The diagonal of a parallelogram divide it in 2 parts, the area of the two parts:

a) will be equal

c) cannot be compared

b) will be unequal

d)  $2/3$  of the area of parallelogram

