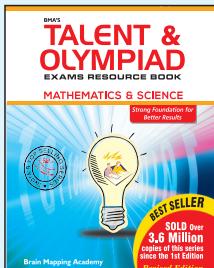


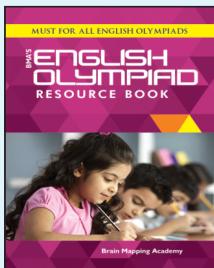
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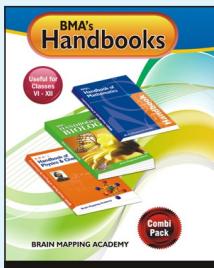
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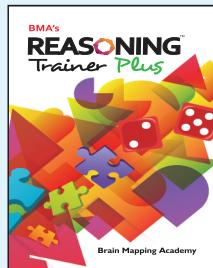
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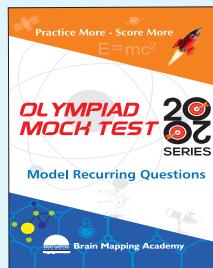
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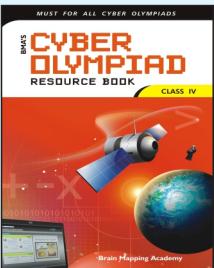
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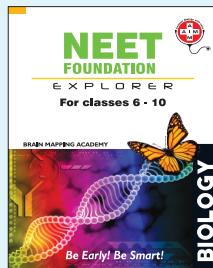
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Questions : 50

Time : 60 minutes

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**Read all instructions carefully before attempting any question.**

- Ensure that the 'Class' printed here and inside, is the same as the test you are appearing for.
- You must complete the paper within the time allotted.
- Do not open this question paper until you are permitted to.
- You are not allowed to use a calculator.
- Figures herein are not to scale. Hence, you cannot depend on the estimate of size or measurement. Use your knowledge of the subject.
- Rough work shall be carried out only in the space provided for the same throughout this booklet. No separate sheets are allowed for the same.
- Return your answer sheet to the invigilator soon after completion and before leaving the examination hall. Take the question paper with you.
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UCM/QP-5/00

**Class – 5**

**Mathematics**

Questions from 1 to 35 are single answer questions, darken the correct option as your answer in the OMR sheet provided. Each carries 1 mark.

- 01** Divide the product of 22 and 45 by 3. Then add 6 hundreds to the result.

(A) 330    (B) 390    (C) 930    (D) 990

- 02** John needed to pack 1425 cans into cartons. He could pack 250 cans into each carton. How many cans were left unpacked ?

(A) 160    (B) 165    (C) 170    (D) 175

- 03** The total cost of a bag and a T-shirt is ₹ 200, Dinesh buys 4 bags and 2 T-shirts for ₹ 650. How much does a T-shirt and 2 bags cost ?

(A) ₹ 355	(B) ₹ 350
(C) ₹ 305	(D) ₹ 352

- 04** Identify the number whose prime factorisation has three 2's, four 3's and a 5.

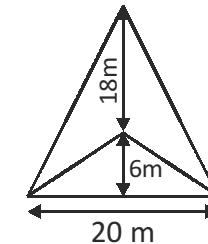
(A) 3240	(B) 2430
(C) 3420	(D) 2304

**Space for Rough work**

- 05** The product of L.C.M. and H.C.F. of two numbers is 285. If one number is 15, then find the other number.

(A) 15    (B) 16    (C) 18    (D) 19

- 06** Find the area of the shaded part of the triangle.



(A) 60 m <sup>2</sup>	(B) 180 m <sup>2</sup>
(C) 240 m <sup>2</sup>	(D) 360 m <sup>2</sup>

- 07** 28 boys and 22 girls attended a camp last week. What was the ratio of the number of girls to the total number of children at the camp ?

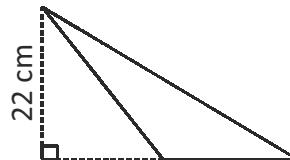
(A) 11 : 25	(B) 12 : 15
(C) 10 : 25	(D) 22 : 28

**Space for Rough work**

**08** On a farm, the number of chickens to the number of cows was in the ratio  $5 : 3$ . The ratio became  $3 : 2$  after 300 chickens were sold. How many more chickens than cows were there at first?

- (A) 1200 (B) 1300 (C) 1400 (D) 1500

**09** The height of the triangle shown below is 10% longer than its base. Find its area.



- (A)  $24.2 \text{ cm}^2$  (B)  $217.8 \text{ cm}^2$   
(C)  $220 \text{ cm}^2$  (D)  $280 \text{ cm}^2$

**10** The volume of water in a jug after rounding it off to two decimal places is  $0.84 \text{ l}$ . John pours  $240 \text{ ml}$  of the water into a cup. Find the largest possible volume of water that is left in the jug.

- (A)  $0.594 \text{ l}$  (B)  $0.595 \text{ l}$   
(C)  $0.604 \text{ l}$  (D)  $0.605 \text{ l}$

Space for Rough work

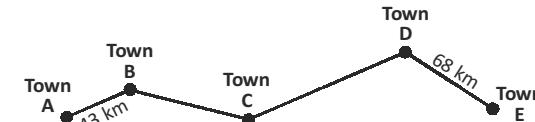
**11** In a Mathematics test, Sunil scored 0.6 of what Manish scored and Manish max scored 0.7 of what Dinesh scored. If Manish scored 70 marks, how many more marks did Dinesh score than Sunil

- (A) 58 (B) 48 (C) 68 (D) 78

**12** Which of the following numbers when rounded off to the nearest thousand is 888000?

- (A) 887494 (B) 888494  
(C) 888501 (D) 888513

**13** If the average distance between every consecutive 2 towns is 56 km, what is the total distance from Town B to Town D?



- (A) 111 km (B) 112 km  
(C) 113 km (D) 114 km

Space for Rough work

**14** There are 400 spectators in a badminton hall. 18% of them are children. How many children are there in the badminton hall ?

- (A) 18      (B) 36      (C) 72      (D) 80

**15** 240 girls and 560 boys took part in a national art competition. What percentage of the participants were girls ?

- (A) 35%      (B) 30%      (C) 32%      (D) 28%

**16** Tarun and Karan had the same amount of savings. After Tarun spent ₹ 1600 and Karan spent ₹ 750, Karan had thrice as much money left as Tarun. How much savings did Tarun have at first ?

- (A) 2052      (B) 2502      (C) 2025      (D) 2520

**17** 1.2 l of water leaked out from a tank with a base area of 800 cm<sup>2</sup>. Find the decrease in the water level in the tank.

- (A) 0.5 cm      (B) 1.0 cm      (C) 1.2 cm      (D) 1.5 cm

*Space for Rough work*

**18** What is the number represented by  ?

	+		+		=	28
	+		+		=	30
	+		+		=	30

- (A) 9      (B) 10      (C) 11      (D) 18

**19** A piece of string is cut into two pieces. The ratio of the longer piece to the shorter piece is 9 : 5. The difference in length of the two strings is 36 cm. Find the length of the original string.

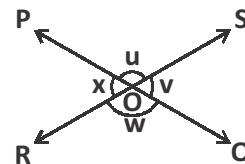
- (A) 126 cm      (B) 186 cm  
(C) 324 cm      (D) 504 cm

**20** Instead of multiplying a certain number A by 50, David multiplied it by 15. The answer was 1575 less than the correct answer. Find the correct value of  $A \times 5 + 5$ .

- (A) 45      (B) 50      (C) 225      (D) 230

*Space for Rough work*

**21** PQ and RS are two straight lines meeting at O.



Which of the following statements is false ?

- (A)  $\angle u = \angle w$
- (B)  $\angle x = \angle v$
- (C)  $\angle x = \angle v = 180^\circ$
- (D)  $\angle x + \angle u = 180^\circ$

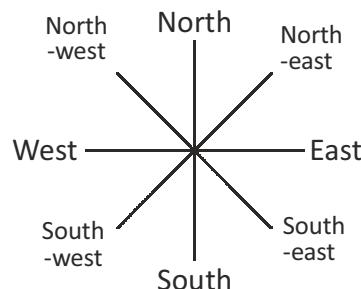
**22** A bag of beans is divided into two packets in the ratio 2 : 7. If the smaller packet is 300 g, what is the mass of the bigger packet ?

- (A) 150 g
- (B) 600 g
- (C) 750 g
- (D) 1050 g

**23** When the diameter of a circle is decreased by its  $\frac{1}{4}$ , by how much will its radius decrease ?

- (A)  $\frac{1}{2}$
- (B)  $\frac{1}{8}$
- (C) 2
- (D)  $\frac{1}{4}$

**24** Harish was facing North-east. He then turned  $135^\circ$  clockwise. In which direction did he face in the end ?



- (A) East
- (B) West
- (C) North
- (D) South

**25** Rana bought a pen for ₹ 5 and sold it to Raman for ₹ 10. What is his gain percentage ?

- (A) 25%
- (B) 50%
- (C) 100%
- (D) 200%

**26** Four students Kartik, Hari, Akhil and Pavan wrote Roman numerals on their slates as given below.



Who wrote the least number ?

- (A) Kartik
- (B) Hari
- (C) Akhil
- (D) Pavan

**27** Identify the smallest possible decimal fraction upto three decimal places.

- (A) 0.101
- (B) 0.111
- (C) 0.001
- (D) 0.011

**28** What is the average mass of 4 parcels with masses of 1 kg 400 g, 2kg, 800 g and 1 kg 200 g ?

- (A) 5 kg 400 g
- (B) 2 kg 700 g
- (C) 1 kg 350 g
- (D) 1 kg 800 g

*Space for Rough work*

**29** What is the missing number in the box ?

Name	Height
Smitha	78 cm
Sunitha	90 cm
Preethi	?
Average height = 84 cm	

- (A) 78 cm      (B) 84 cm  
 (C) 90 cm      (D) 168 cm

**30** N is the biggest common factor of 72 and 120. Which number is twice N ?

- (A) 72      (B) 48      (C) 36      (D) 24

**31** Add the biggest 4-digit odd number to 927435. What is the value of the digit 7 in the result ?

- (A)  $7 \times 100$       (B)  $7 \times 1000$   
 (C) 1000      (D) 70000

**32** Which of these is true ?

- (A) A simple closed figure bounded by five line segments is called a square.  
 (B) A simple closed figure bounded by three line segments is called a triangle.  
 (C) An angle is formed by three rays with a common end point.  
 (D) A square has only one pair of parallel line segments.

**33** Add 5555555555555555 to itself. How many 0's will appear in the sum ?

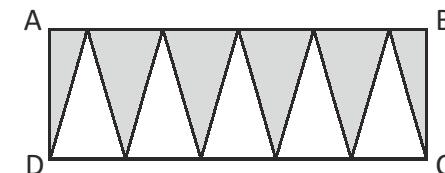
- (A) 1      (B) 5      (C) 15      (D) 7

**34** Identify the best description of the given figure.



- (A) Angle JK      (B) Line segment JK  
 (C) Ray JK      (D) Line JK

**35** The perimeter of a rectangle ABCD is 280 cm. The base of two triangles equals the length of AD. What is the area of the shaded parts of rectangle ABCD ?



- (A)  $200 \text{ cm}^2$       (B)  $2200 \text{ cm}^2$   
 (C)  $2002 \text{ cm}^2$       (D)  $2000 \text{ cm}^2$

*Space for Rough work*

**Class – 5**

**Reasoning**

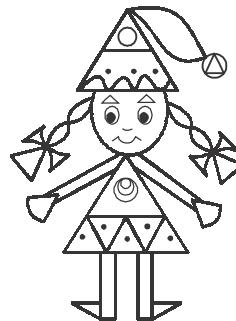
Questions from 36 to 45 are single answer questions, darken the correct option as your answer in the OMR sheet provided. Each carries 1 mark.

- 36** If the letters of each of the following words are reversed, how many meaningful words are formed ?

RATS, DIET, MADAM, MALAYALAM, REST

- (A) 1      (B) 2      (C) 3      (D) 4

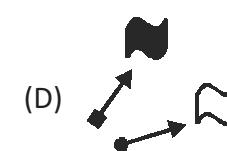
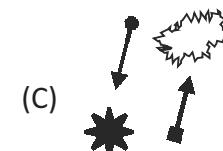
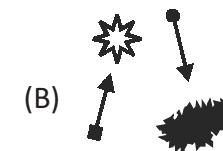
- 37** How many triangles are there in the given figure ?



- (A) 15      (B) 14      (C) 12      (D) 16

*Space for Rough work*

- 38** Find the odd one out.

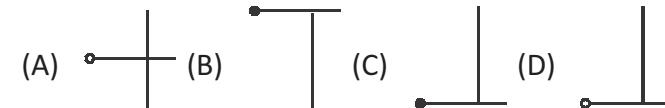


- 39** Choose missing terms from options.

Y, W, U, S, Q, ?, ?

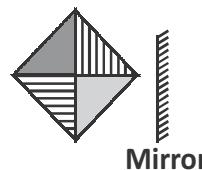
- (A) N, J      (B) M, L      (C) L, M      (D) O, M

- 40** What comes next in the following series ?



*Space for Rough work*

**41** What is the mirror image of the given figure ?



- (A)
- (B)
- (C)
- (D)

**42** If in a certain code, HAT is 782, RABBIT is 681192. What would HABIT be ?

- (A) 78139 (B) 78192 (C) 68192 (D) 78129

**43** Which of the following replaces the question mark ?

17			
41	13	19	?
24			

- (A) 9 (B) 6 (C) 8 (D) 7

Space for Rough work

**44** Identify the figure obtained by folding the shaded part of the given figure.



- (A)   
A 3D perspective view of an L-shaped piece of paper where the top-left triangular section is shaded.
- (B)   
A square with a diagonal line from top-left to bottom-right, and the top-right triangular section is shaded.
- (C)   
A square with a diagonal line from top-left to bottom-right, and the bottom-left triangular section is shaded.
- (D)   
A square with a diagonal line from top-left to bottom-right, and the bottom-right triangular section is shaded.

**45** In which figure is the shape hidden ?

- (A)   
A circle containing a triangle pointing up and to the right.
- (B)   
A circle containing a triangle pointing down and to the left.
- (C)   
A circle containing a triangle pointing up and to the left.
- (D)   
A circle containing a triangle pointing down and to the right.

Space for Rough work

**Class – 5**

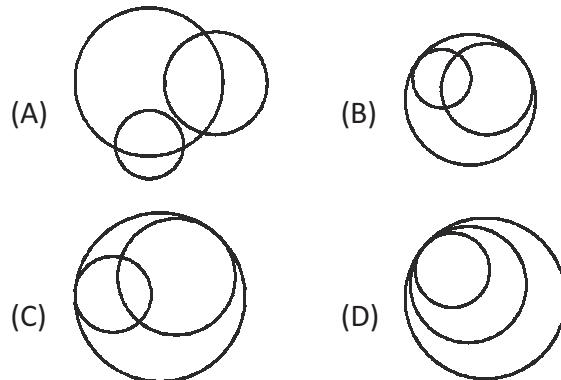
**Critical Thinking**

Questions from 46 to 50 are single answer questions, darken the correct option as your answer in the OMR sheet provided. Each carries 1 mark.

**46** Tarun has 5 keys and 5 locks, but 1 key can only open 1 lock. What is the maximum number of trials that Tarun has to make to match all the keys and the locks.

- (A) 10      (B) 15      (C) 5      (D) 20

**47** Which picture has symmetry ?



**48** There are 20 questions in a mathematics quiz. For each correct answer 5 marks will be given, 2 marks will be deducted for a wrong answer. How many questions does Andy answer wrongly if he scores 72 marks for that mathematics quiz ?

- (A) 5      (B) 4      (C) 3      (D) 6

*Space for Rough work*

**49** There are 40 blocks with numbers from 1 to 40 laid out in order. How many times does the digit 3 appear ?



- (A) 10      (B) 11      (C) 14      (D) 13

**50** How many numbers are there in the English language that are spelt with the same number of letters as the number itself ?

- (A) 3      (B) 0  
(C) 2      (D) 1

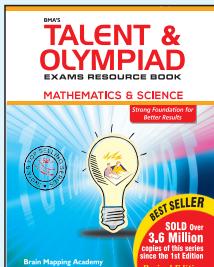
*Space for Rough work*

A	B	A	A	D	B	B	C	D
41	42	43	44	45	46	47	48	49
B	B	A	B	D	C	D	D	D
31	32	33	34	35	36	37	38	39
C	D	D	D	C	C	C	B	D
21	22	23	24	25	26	27	28	29
A	B	C	C	B	C	A	D	D
11	12	13	14	15	16	17	18	19
C	D	A	A	D	B	A	C	C
1	2	3	4	5	6	7	8	9

**KEY**

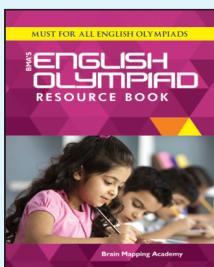
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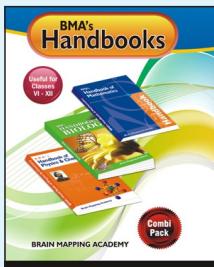
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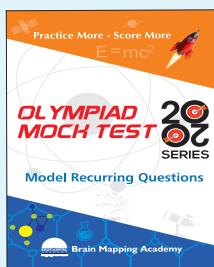
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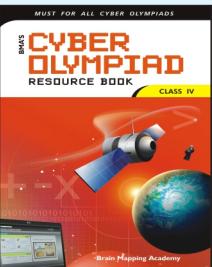
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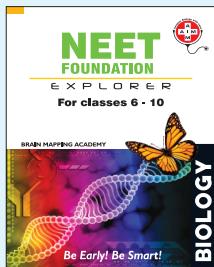
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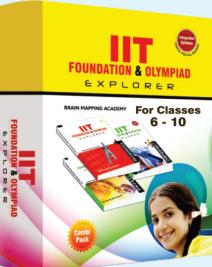
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Time : 60 minutes

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- Figures herein are not to scale. Hence, you cannot depend on the estimate of size or measurement. Use your knowledge of the subject.
- Rough work shall be carried out only in the space provided for the same throughout this booklet. No separate sheets are allowed for the same.
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**Class – 5**

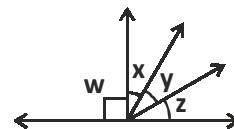
**Mathematics**

Questions from 1 to 35 are single answer questions, darken the correct option as your answer in the OMR sheet provided. Each carries 1 mark.

- 01** There are 25 fishes in a fish tank. 7 of them are guppies. What percentage of the fish in the fish tank are guppies ?

(A) 7%    (B) 14%    (C) 28%    (D) 72%

- 02** In the given figure, if  $\angle x = \angle y = \angle z$ , find the sum of  $\angle w$  and  $\angle x$ .



(A)  $120^\circ$     (B)  $60^\circ$     (C)  $90^\circ$     (D)  $180^\circ$

- 03** A number is bigger than 12, but smaller than 25. It is a common multiple of 3, 4 and 6. Find the number.

(A) 12    (B) 18    (C) 24    (D) 72

- 04** Gopi started working on a project at 13:30. He worked for 1 h 50 min and then took a break. He then continued to work for 2 h 5 min and finished his work at 18:05. How long was his break ?

(A) 50 minutes    (B) 45 minutes  
(C) 30 minutes    (D) 40 minutes

**Space for Rough work**

- 05** A piece of ribbon 39.6 m long is cut into 300 equal pieces to make bows. What is the length of ribbon used to make a bow ? Give your answer in centimetres.

(A) 13.2 cm    (B) 13 cm  
(C) 14 cm    (D) 14.5 cm

- 06** What are the last three digits of the answer to the calculation below ?

$$123 \times 124 \times 125 \times 126 \times 127$$

(A) 000    (B) 222  
(C) 444    (D) 666

- 07** Which statement is correct ?

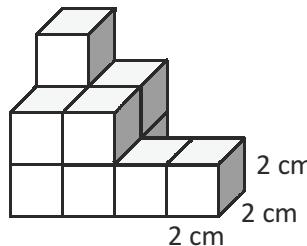
$(A) \frac{15}{24} = \frac{1 \times 5}{2 \times 4}$	$(B) \frac{24}{35} = \frac{2 \times 4}{3 \times 5}$
$(C) \frac{33}{46} = \frac{3 \times 3}{4 \times 6}$	$(D) \frac{42}{57} = \frac{4 \times 2}{5 \times 7}$

- 08** Saketh and his family drink 7040 ml of water a day. If they drink the same amount of water every day, how many litres of water do they drink in 5 days ?

(A) 35.2 ml    (B) 35 ml  
(C) 32 ml    (D) 30 ml

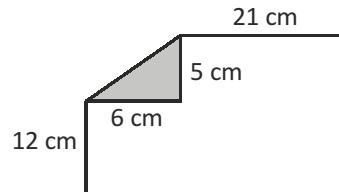
**Space for Rough work**

- 09** What is the total volume of the smallest number of cubes that must be added to make the given figure a cuboid?



- (A)  $104 \text{ cm}^3$       (B)  $64 \text{ cm}^3$   
 (C)  $27 \text{ cm}^3$       (D)  $13 \text{ cm}^3$

- 10** A rectangle sheet of paper is folded at the corner as shown. Find the area of the unshaded part.



- (A)  $429 \text{ cm}^2$       (B)  $429 \text{ cm}^3$   
 (C)  $429 \text{ cm}$       (D)  $429 \text{ m}$

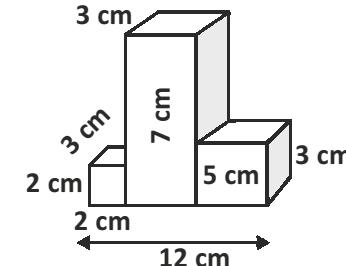
- 11** My dog snooze for 40 minutes in each hour. For how many hours a day does my dog snooze?  
 (A) 15      (B) 10      (C) 18      (D) 16

Space for Rough work

- 12** A farmer had 30 cows and 40 goats. He sold 15 cows. Find the ratio of the number of cows to the number of cows and goats the farmer had in the end.

- (A)  $3 : 10$       (B)  $4 : 11$   
 (C)  $3 : 11$       (D)  $4 : 10$

- 13** Observe the given solid.



Find its volume.

- (A)  $48 \text{ cm}^3$       (B)  $68 \text{ cm}^3$   
 (C)  $72 \text{ cm}^3$       (D)  $162 \text{ cm}^3$

- 14** Rashmi plants a row of five roses stretching 60 cm, equally spaced in a straight line. How long is the space between two roses?

- (A) 5 cm      (B) 10 cm  
 (C) 12 cm      (D) 15 cm

Space for Rough work

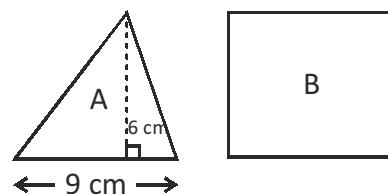
**15** When a pot of plum jam is two-thirds full, it weighs 400 g. When it is only one-third full it weighs 250 g. How much does a full pot of plum jam weigh ?

- (A) 100 g                          (B) 500 g  
(C) 550 g                           (D) 600 g

**16** Find the ratio of  $2\frac{2}{3}$  hours to 64 minutes.

- (A) 2 : 5                            (B) 5 : 2  
(C) 8 : 15                           (D) 15 : 8

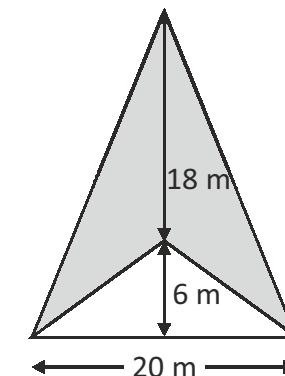
**17** The ratio of the area of triangle A to that of rectangle B is 3 : 8. Find the area of rectangle B.



- (A) 54 cm<sup>2</sup>                        (B) 72 cm<sup>2</sup>  
(C) 81 cm<sup>2</sup>                        (D) 144 cm<sup>2</sup>

*Space for Rough work*

**18** Find the area of the shaded part of the triangle.



- (A) 60 m<sup>2</sup>                           (B) 180 m<sup>2</sup>  
(C) 240 m<sup>2</sup>                           (D) 360 m<sup>2</sup>

**19** What percent of the squares on a chess board are black ?

- (A) 50%                              (B) 60%  
(C) 15%                              (D) 75%

*Space for Rough work*

**20** The sum of two numbers is 1476890. If the difference between the two numbers is 1500, what is the greater number ?

- (A) 736195      (B) 737695  
 (C) 739195      (D) 1 475390

**21** Which option is equal to 4.3 m ?

- (A) 4 m 3 cm      (B) 4 m 30 cm  
 (C) 4 m 300 cm      (D) 4 m 3000 cm

**22** If a car travels 150 km in 5 hours, what is its speed ?

- (A) 150 km/h      (B) 30 km/h  
 (C) 50 km/h      (D) 10 km/h

**23** At a sale, a handbag worth ₹ 175 was sold at a discount of 15%. How much was the discount ?

- (A) ₹ 26.25      (B) ₹ 86  
 (C) ₹ 146.20      (D) ₹ 158.40

*Space for Rough work*

**24** Isha invested a certain amount of money and got back an amount of ₹ 8800. If the bank paid an interest of ₹ 1000, find the amount Isha invested.

- (A) ₹ 7800      (B) ₹ 8700  
 (C) ₹ 7500      (D) ₹ 7080

**25** Find principal when Time = 4 years, Interest = ₹ 800 Rate = 4% p.a

- (A) ₹ 4000      (B) ₹ 6500  
 (C) ₹ 5500      (D) ₹ 5000

**26** Observe the given thermometer.

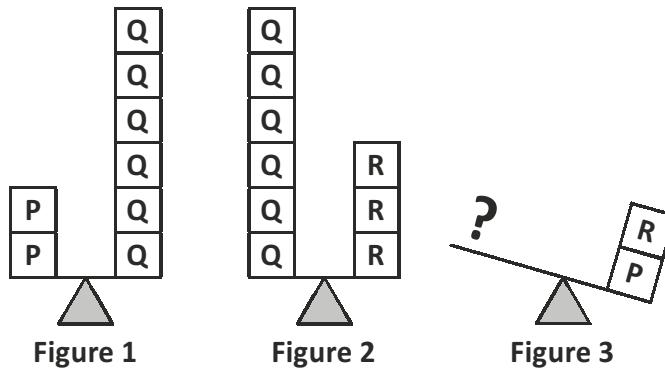


Which temperature of human beings does the thermometer show ?

- (A) High fever      (B) Low fever  
 (C) Very high fever      (D) Normal body temperature

*Space for Rough work*

- 27** There are 3 types of blocks P, Q and R. How many blocks of Q must be placed to balance the scale in Figure 3?



- (A) 2      (B) 3      (C) 4      (D) 5

- 28** What is  $\frac{5}{6}$  of a complete turn equal to?

- (A)  $180^\circ$     (B)  $300^\circ$     (C)  $90^\circ$     (D)  $360^\circ$

- 29** Container A holds 5 l 50 ml of water. Container B holds 2790 ml of water. What is the capacity of container A that holds more water than container B?

- (A) 2 l 260 ml      (B) 2 l 710 ml  
(C) 3 l 740 ml      (D) 7 l 840 ml

Space for Rough work

- 30** A train is travelling at a speed of 160 km/h. How long would it take to travel 1040 km?

- (A) 0.15 h    (B) 6.5 h    (C) 9.2 h    (D) 16 h

- 31** Nishanth bought a phone for ₹ 5600 and sold it for ₹ 6500.

- (A) Profit = ₹ 900      (B) Loss = ₹ 800  
(C) Profit = ₹ 700      (D) Loss = ₹ 900

- 32** Convert 15 decalitres into litres.

- (A) 150 l      (B) 100 l  
(C) 50 l      (D) 500 l

- 33** If  $2805 \div 2.55 = 1100$ , find the quotient of  $280.5 \div 25.5$ .

- (A) 1.1      (B) 1.01  
(C) 0.11      (D) 11

- 34** Neha's aquarium is filled with 2400 cubic centimeters of water. The base of the aquarium is 20 cm long and 12 cm wide. What is the height of the water in Neha's aquarium?

- (A) 15 cm      (B) 10 cm  
(C) 16 cm      (D) 12 cm

- 35** The average temperature of the first three days of a week is  $27^\circ\text{C}$  and that of the next three days is  $29^\circ\text{C}$ . If the weekly average is  $28.5^\circ\text{C}$ , what is the temperature on the last day?

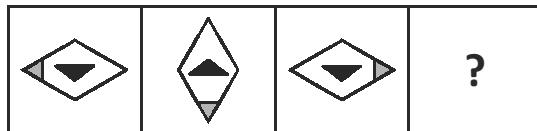
- (A)  $31.5^\circ\text{C}$       (B)  $28^\circ\text{C}$   
(C)  $21^\circ\text{C}$       (D)  $42^\circ\text{C}$

Class – 5

## *Reasoning*

**Questions from 36 to 45** are single answer questions, darken the correct option as your answer in the OMR sheet provided. Each carries **1 mark**.

## **36** What comes next in the series ?



- (A) 

(B) 

(C) 

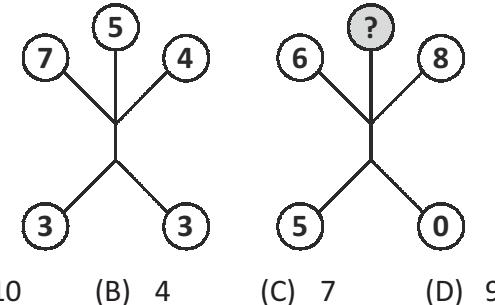
(D) 

**37** Five boys took part in a race. Rakesh finished before Manoj but behind Ganesh. Ashok finished before Sanjeev but behind Manoj. Who won the race ?



### *Space for Rough work*

**38** Which number replaces the question mark ?



**39** If in the word FOUNDATION, the first letter interchanged with the 6<sup>th</sup> letter, the second letter is interchanged with the 7<sup>th</sup> letter and so on, which letter is 6<sup>th</sup> from the right ?

- (A) T      (B) U      (C) O      (D) N

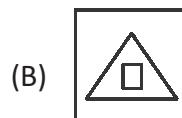
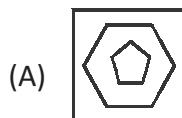
**40** Select the code for the right most image.



- (A) RF      (B) PD      (C) FD      (D) RD

## *Space for Rough work*

**41** Which one is different ?



**42** What comes next in the series ?

 60     78

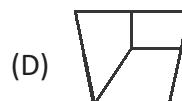
 82     102

 93     115

 106    ?

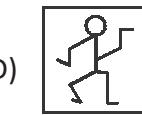
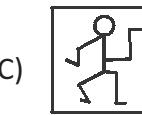
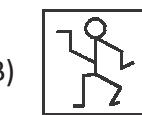
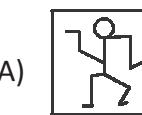
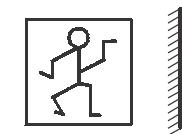
- (A) 130    (B) 124    (C) 128    (D) 134

**43** In which figure is the shape  hidden ?



Space for Rough work

**44** Identify the mirror image of the given figure.



**45** Keerthi ranked 16<sup>th</sup> from the top and 29<sup>th</sup> from bottom among those who passed in a competitive exam. 6 students did not participate in the competition and five students were failed. How many students are there in the class ?

- (A) 35    (B) 45    (C) 55    (D) 50

Space for Rough work

**Class – 5**

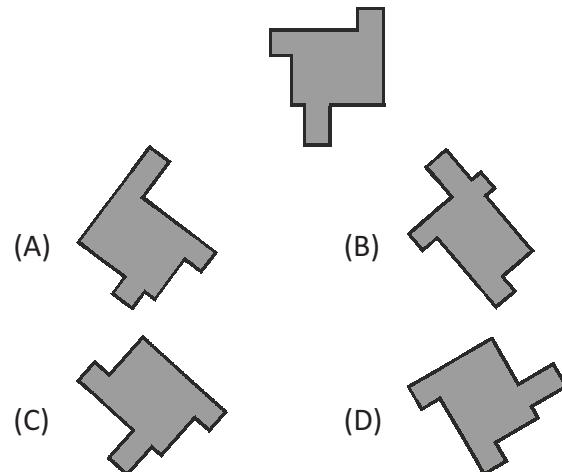
**Critical Thinking**

Questions from 46 to 50 are single answer questions, darken the correct option as your answer in the OMR sheet provided. Each carries 1 mark.

- 46** There are 20 students in a class. They sit in pairs: exactly one third of the boys sit with girl and exactly one half of the girls sit with a boy. How many boys are there in the class ?

(A) 8      (B) 12      (C) 15      (D) 16

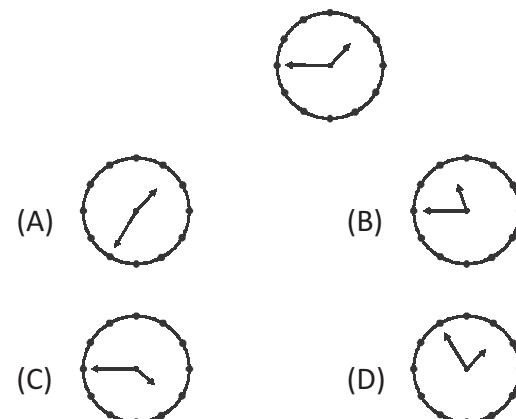
- 47** The given figure has been rotated. Which of the option is the same as the given figure ?



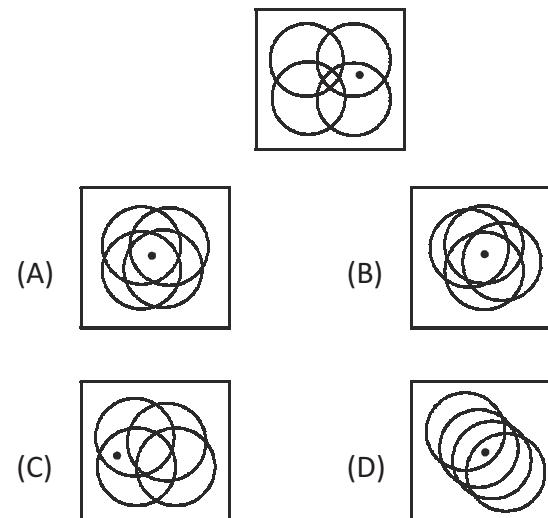
- 48** Arrange the words in their natural sequence from biggest to smallest.

- |             |              |
|-------------|--------------|
| 1. Sentence | 2. Chapter   |
| 3. Letter   | 4. Book      |
| 5. Word     | 6. Paragraph |
- (A) 4, 2, 1, 6, 5, 3      (B) 4, 2, 6, 1, 5, 3  
 (C) 4, 6, 1, 2, 3, 5      (D) 4, 6, 2, 5, 1, 3

- 49** Bharat is getting his hair cut. When he looks in the mirror the clock looks like the figure below. What would he have seen if he had looked in the mirror ten minutes earlier ?



- 50** Which option has the closest resemblance to the given image ?





# UNIFIED COUNCIL

An ISO 9001:2015 Certified Organisation



Unified International  
Mathematics Olympiad

## UNIFIED INTERNATIONAL MATHEMATICS OLYMPIAD (UPDATED)

**CLASS - 5**

**Question Paper Code : UM9009**

**KEY**

1. C	2. A	3. C	4. D	5. A	6. A	7. A	8. A	9. A	10. A
11. D	12. C	13. D	14. D	15. C	16. B	17. B	18. B	19. A	20. C
21. B	22. B	23. A	24. A	25. D	26. D	27. D	28. B	29. A	30. B
31. A	32. A	33. D	34. B	35. A	36. D	37. C	38. A,D	39. D	40. D
41. B	42. A	43. D	44. B	45. C	46. B	47. D	48. B	49. D	50. C

## EXPLANATIONS

### MATHEMATICS

1. (C)  $\frac{7}{25} \times 100\% = 28\%$

2. (A)  $\angle x = \angle y = \angle z = \frac{90^\circ}{3} = 30^\circ$

$\angle w + \angle x = 90^\circ + 30^\circ = 120^\circ$

3. (C) Multiples of 3 = 3, 6, 9, 12, 15, 18, 21 (24)

Multiples of 4 = 4, 8, 12, 16, 20, (24)

Multiples of 6 = 6, 12, 18, (24)

The number bigger than 12 and smaller than 25 and the common multiple of 3, 4 and 6 is 24

4. (D) 13:30 to 18:05 is 4 h 35 min

Duration of time he worked = 1 h 50 min + 2 h 5 min = 3 h 55 min

4 h 35 min – 3 h 55 min = 40 min

His break was 40 min long

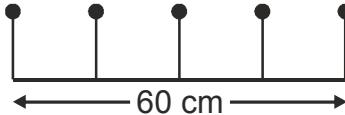
5. (A) Length of the ribbon is 39.6 m

It is divided into 300 equal pieces

$$39.6 \div 300 = (39.6 \div 3) \div 100$$

$$= 13.2 \div 100 = 0.132 \text{ m}$$

The length of ribbon used to make a bow is 13.2 cm

6. (A) The product  $123 \times 124 \times 125 \times 126 \times 127$  is a multiple of 12; moreover, it also has a factor of 2 three times, from  $124 (= 2 \times 2 \times 31)$  and from  $125 (= 2 \times 63)$ . Therefore it is a multiple of  $125 \times 2 \times 2 \times 2 = 1000$ , and so it must end in 000. alternatively, working from the options, it is easily seen that the product is a certainly and even multiple of 5 - so its unit digit is 0.
7. (A) Taking each option we have  $\frac{1 \times 5}{2 \times 4} = \frac{5}{8} = \frac{15}{24}$  so option A is true. For the other options,
- B:  $\frac{2 \times 4}{3 \times 5} = \frac{8}{15} = \frac{24}{45} < \frac{24}{35}$
- C:  $\frac{3 \times 3}{4 \times 6} = \frac{9}{24} = \frac{3}{8} < \frac{33}{46}$  since  $\frac{3}{8}$  is less than  $\frac{1}{2}$
- D:  $\frac{4 \times 2}{5 \times 7} = \frac{8}{35} < \frac{42}{57}$  since  $\frac{8}{35}$  is much less than  $\frac{1}{2}$
- E:  $\frac{5 \times 1}{6 \times 8} = \frac{5}{48} < \frac{51}{68}$  since  $\frac{5}{48}$  is much less than  $\frac{1}{2}$
8. (A)  $1000 \text{ ml} = 1 \text{ l}$   
 $7040 \text{ ml} = \frac{7040}{1000} \text{ l} = 7.04 \text{ l}$   
Amount of water they drink in 5 days  
 $= 5 \times 7.04 = 35.2 \text{ l}$
9. (A) The given figure becomes a cuboid if it has  $4 \times 3 \times 2 = 24$  cubes  
The no. of cubes in the given figure = 11  
The no. of cubes that must be added to make it a cuboid =  $24 - 11 = 13$   
Hence, its volume  
 $= 13 \times 2 \times 2 \times 2 \text{ cm}^3 = 104 \text{ cm}^3$
10. (A) Area of unshaded part  
 $= (12 \times 6) + (5 \times 21) + (12 \times 21)$   
 $= 72 + 105 + 252 = 429 \text{ cm}^2$
11. (D) Snoozing for 40 minutes every hour through the day is  $\frac{4}{6}$  of every hour and thus  $\frac{4}{6}$  of the day. Of 24 hours,  $\frac{4}{6}$  is 16 hours
12. (C) Number of cows the farmer had in the end  
 $= 30 - 15 = 15$   
Number of cows and goats the farmer had in the end  
 $= 15 + 40 = 55$   
Ratio of the number of cows to the number of cows and goats the former had in the end  
 $= 15 : 55 = 3 : 11$
13. (D) Volume of the given solid = Total volume of the three solids in it  
 $= [(2 \times 2 \times 3) + (7 \times 3 \times 5) + (5 \times 3 \times 3)] \text{ cm}^3$   
 $= [12 + 105 + 45] \text{ cm}^3 = 162 \text{ cm}^3$
14. (D) 
- Distance between any two consecutive plants =  $\frac{60 \text{ cm}}{4} = 15 \text{ cm}$
15. (C) We can tell that one-third of the plum jam weighs  $400 - 250 = 150 \text{ g}$  (without the pot itself). Hence the pot on its own weighs  $250 - 150 = 100 \text{ g}$ . and a full pot of jam weighs  $150 \times 3 + 100 = 550 \text{ g}$
16. (B)  $2\frac{2}{3}$  hours to 64 minutes  
1 hour = 60 minutes  
 $2\frac{2}{3}$  hours = 120 minutes + 40 minutes  
= 160 minutes  
 $= 160 : 64 = 20 : 8 = 5 : 2$
17. (B) Area of triangle A: Area of Rectangle B =  $3 : 8$   
 $\frac{1}{2} \times b \times h : B = 3 : 8$   
 $\frac{1}{2} \times 9 \times 6^2 : B = 3 : 8$   
 $27 : B = 3 : 8$   
 $3B = 27 \times 8$   
 $B = \frac{27 \times 8}{3}$   
 $B = 72 \text{ cm}^2$   
Area of rectangle B =  $72 \text{ cm}^2$

18. (B) Area of bigger triangle =  $\frac{1}{2} \times 20 \times (18+6)$   
 $= 240 \text{ m}^2$

Area of smaller triangle =  $\frac{1}{2} \times 20 \times 6 = 60 \text{ m}^2$

Area of shaded part =  $240 - 60 = 180 \text{ m}^2$

19. (A) A chess board has  $8 \times 8 = 64$  squares of which 32 are black.  
Hence, the percentage of black squares  
 $= \frac{32}{64} \times 100\% = 50\%$

20. (C) 2 units  $\rightarrow 1476890 - 1500 = 1475390$   
1 units  $\rightarrow 1475390 \div 2 = 737695$   
Greater number =  $737695 + 1500$   
 $= 739195$

21. (B)  $0.3 \text{ m} = 0.3 \times 100$   
 $= 30 \text{ cm}$   
 $4.3 \text{ m} = 4 \text{ m } 30 \text{ cm}$

22. (B) Speed =  $\frac{\text{Distance}}{\text{Time}} = \frac{150 \text{ km}}{5 \text{ h}} = 30 \text{ km/h}$

23. (A) Discount = 15% of ₹ 175  
 $= \frac{15}{100} \times ₹ 175$   
 $= ₹ 26.25$

24. (A) Amount = ₹ 8800, Interest = ₹ 1000  
P = Amount – Interest  
 $= ₹ 8800 - ₹ 1000 = ₹ 7800$

25. (D)  $S.I = \frac{PTR}{100}$   
 $P = \frac{100 \times S.I}{T \times R}$   
 $= \frac{100^{25} \times 800^{200}}{4 \times 4} = ₹ 5000$

26. (D) The temperature indicated on the given thermometer is  $37^\circ\text{C}$ , which is the normal body temperature of a human being

27. (D) From fig.1 we get  $2P = 6Q \rightarrow P = 3Q \dots(1)$   
From fig.2 we get  $6Q = 3R \rightarrow R = 2Q \dots(2)$   
 $P + R = 3Q + 2R = 5Q$

Hence 5 blocks of Q must be placed to balanced the scale

28. (B)  $\frac{5}{6}$  of a complete turn  
 $= \frac{5}{6} \times 360^\circ = 5 \times 60^\circ = 300^\circ$

29. (A) Capacity of water, container A holds  
 $= 5 l 50 ml = 5050 ml$   
Capacity of water, container B holds =  
 $2790 ml$   
 $= 5050 - 2790 = 2260 ml$   
 $= 2 l 260 ml$

30. (B) Time = Distance  $\div$  Speed  
 $= 1040 \div 160$   
 $= 6.5 \text{ h}$

31. (A) C.P = ₹ 5600 = ₹ 6500  
Since SP > C.P  
Therefore Nishanth makes a profit  
Profit = S.P – C.P  
 $= 6500 - 5600 = ₹ 900$

32. (A) 1 decalitre = 10 litres  
15 decalitres = ?  
 $15 \times 10 = 150 \text{ litres}$

33. (D) As  $2805 \div 2.55 = 1100$ ,  
 $280.5 \div 25.5 = \frac{1100}{100} = 11$

34. (B) Capacity of water in Neha's aquarium =  
 $2400 \text{ cu.cm}$   
Length = 20 cm, width = 12 cm

$V = l \times w \times h$

$2400 = 20 \times 12 \times h$

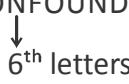
$2400 = 240 \times h$

$h = 2400 / 240 = 10 \text{ cm}$

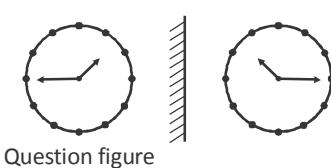
The height of water in Neha's aquarium is 10 cm

35. (A)  $28.5 \times 7 - 27 \times 3 - 29 \times 3 = 31.5^\circ\text{C}$

## REASONING

36. (D) Rotate outer image  $90^\circ$  in anti-clockwise direction. Inner triangle points to downward and upward alternatively.
37. (C) Ganesh > Rakesh > Manoj > Ashok > Sanjeev
38. (A,D)  $(7 + 4) - (3 + 3) = 5$   
 $6 + 8 - (5 + 0) = 9$   
 (or)  
 $[(7 \times 4) + 2] \div (3 + 3) = 5$   
 $[(6 \times 8) + 2] \div (5 + 0) = 10$
39. (D) ATIONFOUND  
  
 6<sup>th</sup> letters
40. (D) 'D' is coded for plane figures.  
 Slanting liner are coded as 'F'.  
 is coded as R.  
 Hence answer is RD.
41. (B) Outside figure has '1' more side than inside figure in A, C, D options, whereas in option B, outside figure is one side less than inside figure.
42. (A)  $60 - 78, 82 - 102, 93 - 115, 106 - 130$   
 $+18 \quad +20 \quad +22 \quad +24$
43. (D) 
44. (B) 
45. (C) Total number of students in the class  
 $16 + 29 - 1 + 6 + 5 = 55$

## CRITICAL THINKING

46. (B) BG BG BG BG BG BG BG BG  
 $\frac{1}{3^{rd}} \text{ Boys} = \frac{1}{2^{nd}} \text{ girls}$   
 $\frac{B}{G} = \frac{3}{2} \Rightarrow B : G = 3 : 2$   
 $3x + 2x = 20$   
 $x = 4$   
 ∴ Number of boys =  $3 \times 4 = 12$
47. (D)
48. (B) Book, Chapter, Paragraph, Sentence, Word, Letter,
49. (D)   
 Question figure
50. (C) Option (C) resembles the given figure.

**The End**