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MATHS OLYMPIAD



**PAKTURK**  
INTERNATIONAL SCHOOLS & COLLEGES

# EXAM BOOKLET FOR CLASS 6

## 13<sup>th</sup> NATIONAL INTER-SCHOOL MATHS OLYMPIAD

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# 13<sup>th</sup> NATIONAL INTER-SCHOOL MATHS OLYMPIAD

## INSTRUCTIONS

1. The total time for the Olympiad is 90 minutes. There is no negative marking.
2. There are 50 questions. (Calculator is **not** allowed.)
3. Do not forget to write your name, class and gender on your answer sheet.
4. There is only one correct answer for each question out of given 4 options A, B, C, D. If you mark more than one choice the answer will be considered wrong. Mark your answers on answer sheet; marks on the booklet will not be accepted.
5. Answer sheets will be checked by using the optical reader. Do not fold or use your answer sheet for calculation etc.
6. Before you begin to answer the questions, read them carefully.
7. You may begin your answer from any question; however you must make sure that the number of the question you are answering matches the correct number in the answer sheet.
8. Mark your answer with a lead pencil by filling only the inside of the circles. Do not write or put any other mark on your answer sheet.
9. Speed is important when you answer the questions. If you have difficulty with a question, do not waste your time to solve it, just move on to the next question, You may go back to the 'difficult' question if you still have time after finishing other parts of the Olympiad.
10. The blank areas in the booklet may be used for writing and calculations.
11. Answer key will be uploaded on our website at 7:00 p.m. on 27th November 2017.
12. Results will be announced through our website ([www.ismo.pk](http://www.ismo.pk)).

**Q1:**  $0.2 - 0.02 = ?$

- A) 1.8      B) 1.08      C) 0.018      D) 0.18

**Q2:**  $24 + 3^3 \div 9 - 5 + 3 \times 12 = ?$

- A) 44      B) 52      C) 58      D) 64

**Q3:** A natural number which is divisible by one and itself is called a

- A) Composite Number      B) Prime Number  
C) Factor      D) Prime Factorization

**Q4:** What is the sum of the three greatest positive factors of 100?

- A) 175      B) 160      C) 150      D) 85

**Q5:** Which of the following is not a prime factor of 600?

- A) 5      B) 7      C) 3      D) 2

**Q6:** Which of the following is not correct?

- A)  $48 = 2^4 \times 3$       B)  $72 = 2^3 \times 3^2$   
C)  $168 = 2^2 \times 3^2 \times 7$       D)  $144 = 2^4 \times 3^2$

**Q7:** Which of the following number should be removed to make L.C.M. of the remaining numbers 144?

**48, 24, 72, 16, 60**

- A) 48      B) 72      C) 24      D) 60

**Q8:** The smallest positive number that can be multiplied by 0.08 to get a natural number is:

- A) 25      B) 40      C) 50      D) 75

**Q9:**  $\frac{0.7}{70} + \frac{0.3}{30} + \frac{0.2}{20} + \frac{0.4}{40} = ?$

- A) 0.5      B) 0.05      C) 0.4      D) 0.04

**Q10:** Which of the following operation has the greatest value?

- A)  $10 \div 2 + 3 \times 5$       B)  $5 \times 2 + 3 \times 5$   
C)  $10 \times 2 + 20 \div 2$       D)  $2 \times 10 \div 5 - 2 + 6$



**Q11:** What is the unknown number indicated by question mark?



- A) 100      B) 88      C) 72      D) 68

**Q12:** How many even numbers are there between 112 and 189?

- A) 38      B) 39      C) 40      D) 41

**Q13:** Which of the following is equivalent to 10 percent?

- A)  $\frac{1}{5}$       B) 0.2      C)  $\frac{1}{100}$       D)  $\frac{1}{10}$

**Q14:** L.C.M of any two prime numbers is:

- A) sum of the numbers  
 B) product of the numbers  
 C) difference of the numbers  
 D) greater prime number

**Q15:**  $4.8 + 12.2 + 0.2 + 42 = ?$

- A) 48.4      B) 52.2      C) 54.2      D) 59.2

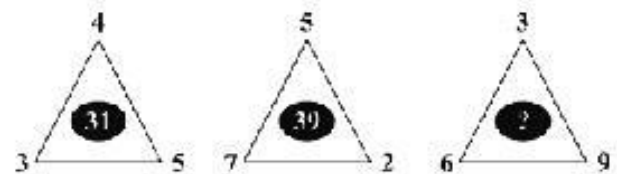
**Q16:**  $\frac{1 - \frac{1}{2}}{\frac{1}{4} + 0.25} = ?$

- A) 1      B)  $\frac{1}{2}$       C)  $\frac{1}{3}$       D)  $\frac{1}{4}$

**Q17:**  $\frac{1}{9} + \frac{1}{16} \times \frac{64}{3} = ?$

- A)  $\frac{13}{6}$       B)  $1\frac{4}{9}$       C)  $\frac{11}{9}$       D)  $4\frac{1}{3}$

**Q18:** What is the unknown number indicated by question mark?



- A) 63      B) 65      C) 66      D) 69

**Q19:** If two fractions are equivalent, then which of the following is always correct?

- A) The numerators are equal  
 B) Cross products are equal  
 C) The denominators are equal  
 D) Their sum is 1

**Q20:** Which of the following number is divisible by H.C.F. of 51 and 85?

- A) 425      B) 485      C) 515      D) 517

**Q21:** When a certain positive integer is divided by 7 gives a remainder of 5 and when it is divided by 11 gives a remainder of 8. Hence the integer can be:

- A) 12      B) 30      C) 15      D) 19

**Q22:** The average of four numbers is 75. If three of them are 45, 80 and 65, what is the fourth number?

- A) 130      B) 120      C) 110      D) 80

**Q23:** If  $32 = 16 \times a = 8 \times b = c \times 4$ , then what is the sum of  $a$ ,  $b$  and  $c$ ?

- A) 12      B) 14      C) 16      D) 18

**Q24:** The sum of ages of Asif and Tehseen is 44. What is the age of Asif if Tehseen is 12 years elder than Asif?

- A) 16      B) 24      C) 28      D) 36

**Q25:** What is ratio of the number of prime factors and all positive factors of 48?

- A)  $\frac{1}{4}$       B)  $\frac{1}{5}$       C)  $\frac{2}{7}$       D)  $\frac{2}{3}$

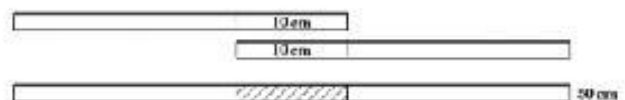
**Q26:** What is  $x$  if  $2x - 4 = x + 11$ ?

- A) 15      B) 12      C) 11      D) 4

**Q27:** What is the remainder when 111 is divided by 11?

- A) 11      B) 10      C) 1      D) 0

**Q28:** A girl has 4 paper strips of the same length. She glues 2 of them together with a 10 cm overlap, and gets a strip of 50 cm long.



With the other two paper strips, she wants to make a strip of 56 cm long. How long should the overlap be?

- A) 3      B) 4      C) 6      D) 8

**Q29:** A pen costs 3 times as much as a pencil and half as much as a fancy marker. Determine the cost of the marker if the cost of the pencil is Rs. 500.

- A) Rs. 750                      B) Rs. 1500  
C) Rs. 3000                     D) Rs. 4500

**Q30:** Which decimal number below is same as  $\frac{21}{28}$ ?

- A) 0.45      B) 0.54      C) 0.75      D) 0.80

**Q31:** There are 124 students in a school, how many students are absent if  $\frac{28}{31}$  of them are present?

- A) 8            B) 10            C) 12            D) 14

**Q32:** The average speed of a car is 75 km/h. How many meters can the car travel in 20 minutes?

- A) 25                              B) 250  
C) 2500                          D) 25000

**Q33:** What is the value of  $n$  if

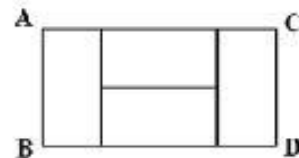
$$\left(1 - \frac{1}{2}\right) \times \left(1 - \frac{1}{3}\right) \times \left(1 - \frac{1}{4}\right) \dots \dots \left(1 - \frac{1}{n}\right) = \frac{1}{25}$$

- A)  $\frac{1}{5}$             B)  $\frac{1}{25}$             C) 5            D) 25

**Q34:** In a class of 36 students, 18 of the students are boys. How many more boys should join the class so that the ratio of the boys will be  $\frac{2}{3}$ ?

- A) 12            B) 18            C) 24            D) 36

**Q35:** Rectangle ABCD consists of 4 congruent rectangles. If the perimeter of one of congruent rectangles is 24 cm, then what is the perimeter of rectangle ABCD?



- A) 24 cm      B) 48 cm      C) 72 cm      D) 96 cm

**Q36:** How many seconds are there in a day?

- A) 1440                              B) 8640  
C) 86400                             D) 172800

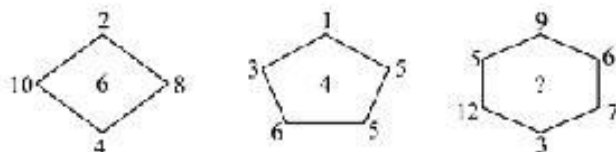
**Q37:** Ali, Hassan, Raees and Zaid have  $\frac{3}{10}$  kg,  $\frac{4}{5}$  kg,  $\frac{2}{5}$  kg and  $\frac{7}{5}$  kg nuts respectively. How much kg will each have if they mix all the nuts and share them equally?

- A)  $\frac{29}{40}$       B)  $\frac{29}{10}$       C) 29      D)  $\frac{10}{29}$

**Q38:** Haroon solved the expression  $\frac{3}{4} + \frac{2}{5}$  in four different ways. Which way is the correct one?

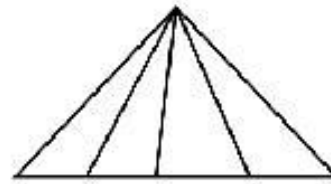
- A)  $\frac{3}{4} + \frac{2}{5} = \frac{3+2}{4+5} = \frac{5}{9}$   
 B)  $\frac{3}{4} + \frac{2}{5} = \frac{5 \times 3 + 4 \times 2}{4 \times 5} = \frac{5 \times 7 \times 2}{4 \times 5} = \frac{70}{20} = \frac{7}{2}$   
 C)  $\frac{3}{4} + \frac{2}{5} = \frac{5 \times 3 + 4 \times 2}{4 \times 5} = \frac{15+8}{4 \times 5} = \frac{23}{20}$   
 D)  $\frac{3}{4} + \frac{2}{5} = \frac{3+2}{4 \times 5} = \frac{5}{20} = \frac{1}{4}$

**Q39:** What is the unknown number indicated by question mark in the figure given below?



- A) 7      B) 6      C) 5      D) 4

**Q40:** How many triangles are there in given figure?



- A) 4      B) 5      C) 10      D) 12

**Q41:** The average of 30 numbers is 64. The number 69 was incorrectly read as 96 while calculating. What is the correct average?

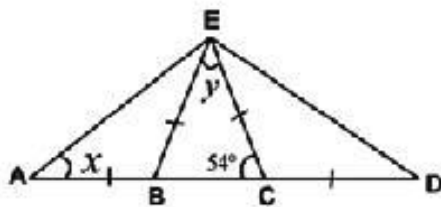
- A) 61.4      B) 61.3      C) 62.5      D) 63.1

**Q42:** What is the unknown number indicated by question mark in the figure given below?

22	8	6	9	⇒	11
18	12	4	2	⇒	8
15	5	10	6	⇒	?

- A) 12      B) 10      C) 14      D) 16

**Q43:** In the figure below, the sides  $\overline{AB}$ ,  $\overline{BE}$ ,  $\overline{EC}$  and  $\overline{CD}$  are congruent. What is the sum of  $x$  and  $y$ ?



- A)  $100^\circ$       B)  $99^\circ$       C)  $87^\circ$       D)  $83^\circ$

**Q44:** The following numbers are arranged according to a rule.

**3, 10, 24, 50, 108**

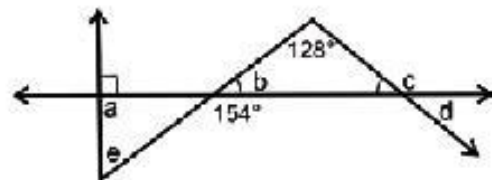
Which of the following numbers should not be in the number pattern above?

- A) 10      B) 24      C) 50      D) 108

**Q45:** Mr. Sohail is a retired teacher, will get a 10% increase in his monthly pension from July 2017. He spends 50% of his pension on food items. How much money will he be spending on food items during the next month, if he currently spends Rs.36000?

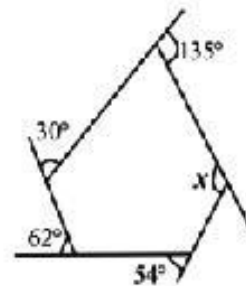
- A) Rs. 36000      B) Rs. 37200  
C) Rs. 38000      D) Rs. 39600

**Q46:** According to figure below, which of the following is incorrect?



- A)  $a+b+e=180^\circ$       B)  $c=128^\circ+b$   
C)  $b=46^\circ$       D)  $c+d=180^\circ$

**Q47:** Four exterior angles of the pentagon are given in the figure below.



What is the measure of angle  $x$ ?

- A)  $101^\circ$       B)  $107^\circ$       C)  $111^\circ$       D)  $113^\circ$



**Q48:** What is the unknown number indicated by question mark in the figure given below?

$\textcircled{6.27}$	$\textcircled{3.73}$	$\boxed{2} \rightarrow 5$
$\textcircled{1.43}$	$\textcircled{4.57}$	$\boxed{3} \rightarrow 2$
$\textcircled{8}$	$\textcircled{8}$	$\boxed{4} \rightarrow ?$

- A) 2      B) 4      C) 5      D) 7

**Q49:** The sides of a rectangle are 16 m and 24 m respectively. A person wants to divide it into squares so that each square is as big as possible. What is the number of squares?

- A) 6      B) 8      C) 12      D) 15

**Q50:** If sum of the measures of two angles of a triangle is  $125^\circ$ , then the third angle is:

- A) Reflex Angle      B) Obtuse Angle  
C) Right Angle      D) Acute Angle

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in HSSC - II, 2017  
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**Zehra Batool**

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**Usman Khalid**

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