GG RS LEARNING HUB PVT. LTD.

IMO CLASS 7 (MATHS)

Total Questions: 50 **Time: 1hr.**

Section – 1 : Verbal and Non-Verbal Reasoning.

Section – 2 : Integers, Fractions and Decimals, Exponents and Powers, Algebraic Expressions, Simple Linear Equations, Lines and Angles, Comparing Quantities, The Triangle and its Properties, Symmetry, Congruence of Triangles, Rational Numbers, Perimeter and Area, Data Handling, Visualising Solid Shapes, Practical Geometry.
Section – 3 : Syllabus as per Section – 2.

Section – 4 : Higher Order Thinking Questions - Syllabus as per Section – 2.

SECTION 01 LOGICAL REASONING

1. Seismography: Earthquake: : Barometer : ?

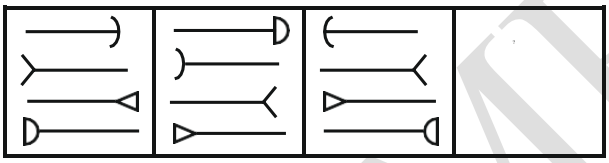
(A) Landslides B. Volcanoes C. Pressure D. Resistance

2. 16: 65: : 144 : ?

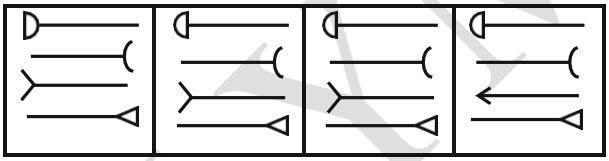
(A) 1729 B. 1723 C. 1730 D. 1726

Directions (3-4): Each of the following questions consists of two sets of figures. Figures 1, 2, 3 and 4 constitute the problem set while figures (a), (b), (c) and (d) constitute the answer set. There is a definite relationship between figures (1) and (2) a similar relationship between figures (3) and (4) by selecting a suitable figure from the answer set that would replace the problem mark (?) in fig (4).

3.



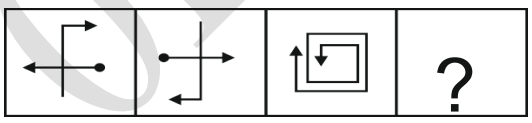
(1) (2) (3) (4)



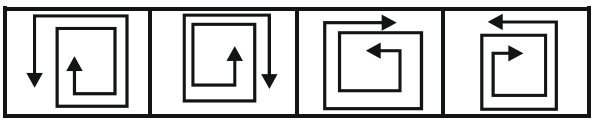
(a) (b) (c) (d)

(A) a (B) b (C) c (D) d

4.



(1) (2) (3) (4)



(a) (b) (c) (d)

(A) a (B) b (C) c (D) d

5. In the following question, select the number which can Be placed at the sign of question mark (?) from the give-n alternatives.

3	6	4	18
2	5	8	21
3	1	7	?

(A) 20 B. 21 C. 22 D. 24

6. From a circular sheet of paper with a radius 20 cm, four circlesof radius 5 cm each are cut out. What is the ratio of the uncut to the cut portion?

(A) 1: 3 B. 4: 1 C. 3: 1 D. 4: 3

7. The cost of diamond varies directly as the square of its weight.Once, this diamond broke into four pieces with weights in the ratio 1: 2: 3: 4. When the pieces were sold, the merchant got Rs. 70,000 less. Find the original price of the diamond.

(A) Rs. 1.4 lakh B. Rs. 2 lakh C. Rs. 1 lakh D. Rs. 2.1 lakh

8. A man earns x% on the first Rs. 2,000 and y% on the rest of his income. If he earns Rs. 700 from income of Rs. 4,000 andRs. 900 from if his income is Rs. 5,000, find x%.

(A) 20% B. 15% C. 25% D. None of these

9. In a watch, the minute hand crosses the hour hand for the thirdtime exactly after every 3 hr 18 min and 15 s of watch time. Whatis the time gained or lost by this watch in one day?

(A) 14 min 10 s lost

(B) 13 min 50 s lost

(C) 13 min 20 s gained

(D) 14 min 40 s gained

10. I sold two watches for Rs. 300 each, one at the loss of 10% and the other at the profit of 10%. What is the percentage of loss(–) or profit(+) that resulted from the transaction?

(A) (+)10 B. (–)1 C. (+)1 D. (–)10

11. Samir was standing facing East. He turned to his right and walked 5 metres, again turned to his right and walked 7 metres. Then he turned to his left and walked 4 metres. Which direction is he facing now?

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

12. How many such pairs of letters are there in the word 'EXPERIMENT', each of which has as many letters between them in the word as they have in the English alphabet?

(A) None B. One C. Two D. Three

13. In a row of children facing North, Shweta is fifteenth from the left and Jyoti is third to the left of Shweta. Ram who is seventh to the right of Jyoti is fifth from the right end of the row. What is Shweta's position from the right end?

(A) 12^{th}

(B) 10^{th}

(C) 8^{th}

(D) 9^{th}

14. If m and n are integers divisible by 5, which of the followingis not necessarily true?

(A) m – n is divisible by 5 B. $m^2 – n^2$ is divisible by 25

C. m + n is divisible by 10 D. None of these

15. In certain code DEAF is written as 3587 and FILE iswritten as 7465. How is IDEAL written in that code?

(A) 48536 B. 43568 C. 63548 D. 43586

SECTION02 MATHEMATICAL REASONING

16. Mr. X enters a positive integer Y in an electronic calculatorand then goes on pressing the square – root key repeatedly.Then

(A) The display does not stabilize B. The display becomes closer to 0

C.The display becomes closer to 1 D. May not be true and the answer depends on the choice ofY

17. Consider the following steps :

1. Put x = 1, y = 2
2. Replace x by xy
3. Replace y by y +1
4. If y = 5 then go to step 6 otherwise go to step 5.
5. Go to step 2
6. Stop

Then the final value of x equals

(A) 1 B. 24 C. 120 D. 720

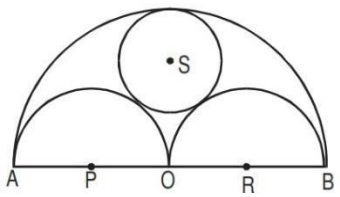
18. If n is any positive integer, then $n^3 – n$ is divisible

(A) Always by 12 B. Never by 12 C. Always by 6 D. Never by 6

19. The sum of four consecutive two-digit odd numbers is 160, when divided by 10, becomes a perfect square. Which of the following can possibly be one of these fournumbers?

(A) 21 B. 25 C. 41 D. 67

20. Three horses are grazing within a semi-circular field. In the diagram given below, AB is the diameter of the semi-circular field with center at O. Horses are tied up at P, R and S such that PO and RO are the radii of semi-circles with centers at P and R respectively, and S is the center of the circle touching the two semi-circles with diameters AO and OB. The horses tied at P and R can graze within the respective semi-circles and the horse tied at S can graze within the circle centred at S. The percentage of the area of the semi-circle with diameter AB that cannot be grazed by the horses is nearest to



(A) 20 B. 28 C. 36 D. 40

21. An equilateral triangle BPC is drawn inside a square ABCD.What is the value of the angle APD in degrees?

(A) 75 B. 90 C. 120 D. 150

22. Three wheels can complete 60, 36 and 24 revolutions per minute. There is a red spot on each wheel that touches the ground at time zero. After how much time, all these spots willsimultaneously touch the ground again

(A) 2.5s B. 5s C. 6s D. 7.5s

23. n^3 is odd. Which of the following statement(s) is/are true?

I. n is odd. II. n^2 is odd. III. n^2 is even.

(A) I only B. II only C. I and II D. I and III

24. A company has a job to prepare certain number cans and there are three machines A, B and C for this job. A can complete the job in 3 days, B can complete the job in 4 days, and C cancomplete the job in 6 days. How many days will the companytake to complete the job if all the machines are used simultaneously?

(A) 4 days B. 4/3 days C. 3 days D. 12 days

25. Manish has one-rupee coins, 50-paisa coins and 25-paisa coins. The number of coins are in the ratio 2.5 : 3 : 4. If the total amount with me is Rs. 210, find the number of one-rupee coins

(A) 90 B. 85 C. 100 D. 105

26. Ram purchased a flat at Rs.1 lakh and Prem purchased a plotof land worth Rs.1.1 lakh. The respective annual rates at which the prices of the flat and the plot increased were 10% and 5%. After two years they exchanged their belongings andone paid the other the difference. Then

(A) Ram paid Rs.275 to Prem B. Ram paid Rs.475 to Prem

C. Ram paid Rs.375 to Prem D. Prem paid Rs.475 to Ram

27. A person who has a certain amount with him goes to market. He can buy 50 oranges or 40 mangoes. He retains 10% of the amount for taxi fares and buys 20 mangoes and of the balance he purchases oranges. Number of oranges he can purchase is

(A) 36 B. 40 C. 15 D. 20

28. A man invests Rs.3,000 at the rate of 5% per annum. How much more should he invest at the rate of 8%, so that he can earn a total of 6% per annum?

(A) Rs.1,200 B. Rs.1,300 C. Rs.1,500 D. Rs.2,000

29. 2/5 of the voters promise to vote for P and the rest promised to vote for Q. Of these, on the last day 15% of the voters went back of their promise to vote for P and 25% of voters went back of their promise to vote for Q, and P lost by 2 votes. Thenthe total number of voters is

(A) 100 B. 110 C. 90 D. 95

30. A group of men decided to do a job in 8 days. But since 10 men dropped out every day, the job got completed at the endof the 12th day. How many men were there at the beginning?

(A) 165 B. 175 C. 80 D. 90

31. I live X floors above the ground floor of a high-rise building. It takes me 30 s per floor to walk down the steps and 2 s per floor to ride the lift. What is X, if the time taken to walk downthe steps to the ground floor is the same as to wait for the liftfor 7 min and then ride down?

(A) 4 B. 7 C. 14 D. 15

32. The equation $7^{x-1} + 11^{x-1} = 170$ has

(A) No solution B. One solution C. Two solutions D. Three solutions

33. In 2011, Plasma – a pharmaceutical company – allocated Rs.4.5×10^7 for Research and Development. In 2012, the company allocated Rs, 60,000,000 for Research and Development. If each year the funds are evenly divided among 2×10^2 departments, how much more will each department receive this year than it did last year?

(A) Rs. 2.0×10^5

(B) Rs. 7.5×10^5

(C) Rs. 7.5×10^4

(D) Rs. 2.5×10^7

34. A truck travelling at 70 km/hr uses 30% more diesel to travel a certain distance than it does when it travels at a speed of 50 km/hr. If the truck can travel 19.5 km/L of diesel at 50 km/hr, how far can the truck travel on 10 L of diesel at a speed of 70km/hr?

(A) 130 km B. 140 km C. 150 km D. 175 km

35. Consider a sequence of seven consecutive integers. The average of the first five integers is n. The average of all the seven integers is

(A) N B. n + 1 C. k × n, where k is a function of n D. $n + \frac{2}{7}$

SECTION 03 EVERYDAY MATHEMATICS

36. A student gets an aggregate of 60% marks in five subjects in the ratio 10: 9: 8: 7: 6. If the passing marks are 50% of the maximum marks and each subject has the same maximum marks, in how many subjects did he pass the examination?

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

37. After allowing a discount of 11.11%, a trader still makes a gain of 14.28%. At how many percentage above the cost pricedoes he mark on his goods?

(A) 28.56% B. 35% C. 22.22% D. None of these

38. A dealer buys dry fruits at Rs.100, Rs.80 andRs. 60 per kilogram. He mixes them in the ratio 3: 4: 5 by weight, and sells at a profit of 50%. At what price per kilogram does he sell the dry fruit?

(A) Rs.80 B. Rs.100 C. Rs.95 D. None of these

39. An express train travelling at 80 km/hr overtakes a goods train, twice as long and going at 40 km/hr on a parallel track,in 54 s. How long will the express train take to cross a platform of 400 m long?

(A) 36 s B. 45 s C. 7 s D. None of these

40. P and Q are two positive integers such that PQ = 64. Whichof the following cannot be the value of P + Q?

(A) 20 B. 65 C. 16 D. 35

41. Lance, Sally, Joy and Fred are chosen for the team. In howmany ways can the three starters be chosen?

(A) 2 B. 4 C. 6 D. 8

42. After Sally takes 20 shots, she has made 55% of her shots. After she takes 5 more shots, she raises her percentage to 56%.How many of the last 5 shots did she make?

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

43. An athlete's target heart rate, in beats per minute, is 80% of the theoretical maximum heart rate. The maximum heart rate is found by subtracting the athlete's age, in years, from 220. To the nearest whole number, what is the target heart rateof an athlete who is 26 years old?

(A) 134 B. 155 C. 176 D. 194

44. The numbers -2, 4, 6, 9 and 12 are rearranged according tothese rules:

1. The largest isn't first, but it is in one of the first threeplaces.
2. The smallest isn't last, but it is in one of the last threeplaces.
3. The median isn't first or last.

What is the average of the first and last numbers?

(A) 3.5 B. 5 C. 6. *D.* 7.5

45. Ten years ago, the ages of the members of a joint family of eight people added up to 231 years. Three years later, one member died at the age of 60 years and a child was born during the same year. After another three years, one more member died, again at 60, and a child was born during the same year. The current average age of this eight-member jointfamily is nearest to

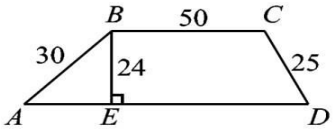
(A) 23 years B. 22 years C. 21 years D. 24 years

SECTION04 ACHIEVER SECTION

46. How many three-digit numbers are divisible by 13?

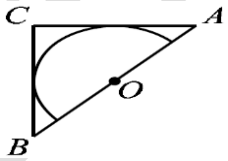
(A) 7 B. 67 C. 69 D. 76

47. What is the perimeter of trapezoid *ABCD*?



(A) 180 B. 188 C. 196 D. 200

48. Isosceles right triangle *ABC* encloses a semicircle of area 2□. The circle has its center *O* on hypotenuse AB and is tangent tosides AC and BC. What is the area of triangle *ABC*?



(A) 6 B. 8 C. 3 D. 10

49. A certain calculator has only two keys [+1] and [×2]. When you press one of the keys, the calculator automatically displays the result. For instance, if the calculator originally displayed “9" and you pressed [+1], it would display “10." Ifyou then pressed [×2], it would display “20." Starting with the display “1," what is the fewest number of keystrokes you would need to reach “200"?

(A) 8 B. 9 C. 10 D. 11

50. In an objective examination of 90 questions, 5 marks are allotted for every correct answer and 2 marks are deducted for every wrong answer. After attempting all the 90 questionsa student got a total of 387 marks. Find the number ofquestions that he attempted wrong.

(A) 36 B. 18 C. 9 D. 27