INFINITY THINK BEYOND.....

AN EDUCATIONAL INSTITUTE

VIII

Maths Craft (A Square & A cube)

Ganita Prakash Chapter 1- Prepared BY Deepika Bhati (Teaching mathematics passionately since 2009)

INSTRUCTIONS TO THE STUDENT

1.Read each question carefully before attempt.

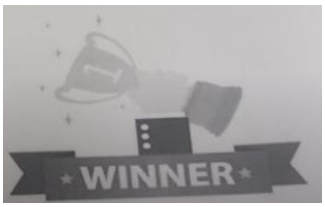
2. The mark for each question is mentioned in front of it.

3. Show all necessary steps in your answer.

S.NO	SECTION - A	Mark
1.	The cube of 11 is (a)1331 (b)3113 (c)1313 (d)3131	1
2	The number of zeros in the cube of 1000 (a)2 (b)4 (c)9 (d)10	1
3	The cube of (-21) is (a)9261 (b)—9261 (c)—2961 (d)—9216	1
4	The cube roots of 63x1176 is (a)216 (b)—42 (c)42 (d)—216	1
5	The cube root of $\frac{-64}{125}$ is (a)$\frac{8}{5}$ (b) $-\frac{8}{5}$ (c)$-\frac{4}{5}$ (d) $\frac{4}{5}$	1
6	Given that $\sqrt[3]{x} = -6$ then x is (a)216 (b)18 (c)—18 (d)—216	1
7	Given that $512=8^3$, $3.375= 1.5^3$, find the value of $\sqrt[3]{512} = \sqrt[3]{3.375}$ (a)12 (b)9.5 (c)8 (d)1.5	1
8	Which is the greatest three-digit perfect cube? (a) 125 (b) 343 (c) 729 (d) 512	1
9	Which is the smallest three-digit perfect cube? (a) 125 (b) 343 (c) 729 (d) 512	1
10	Which of them is a perfect square? (a) 576 (b)941 (c)65 (d)none	1
11	Which of the following is not a perfect square? (a)62500 (b)57600 (c)90000 (d)63147	1
12	How many non square numbers are there in between n^2 and $(n+1)^2$ (a) 2n (b) 4n (c)3n (d) 2n+1	1
13	Which of the following will have 4 at units place? (a)14^2 (b)62^2 (c)27^2 (d)35^2	1
14	Which of the following is the square root of 7056? (a) 86 (b) 34 (c) 54 (d) 84	1
15	Find the number of non-square numbers lying between 40^2 and 41^2. (a) 80 (b)40 (c)30 (d)84	1

16	The square of an even number is always_____. (a)even (b)odd (c)may be even or odd (d)none	1
17	The digit in the unit's place in the square root of 15876 is (a) 8 (b)6 (c)4 (d)2	1
18	How many natural numbers lie between 5^2 and 6^2 ? (a)9 (b)10 (c)11 (d)12	1
19	The smallest square number which is divisible by each of the numbers 6,9 and 15 is (a)800 (b)810 (c)600 (d)900	1
20	The square root of 0.0576 is (a)2.4 (b)0.024 (c)0.0024 (d) 0.24	1
21	The value of $\sqrt{1164-\sqrt{225}+\sqrt{49}}$ is (a)34 (b)36 (c)38 (d)32	
22	The pair of partner factor of 8 is (a)1 and 8 (b)2 and 4 (c)2 and 6 (d)both (a) and (b)	1
23	If 6^2 = 3844 then 632 is equal to (a)3844+63 (b)3844+126 (c)3844+125 (d)3844+64	1
24	By what least number, 675 be multiplied to obtain a number cube? (a)5 (b)6 (c)7 (d)8	1
25	Which of the following is a Hardy- Ramanujan number? (a)1729 (b)2046 (c)13833 (d) None of these	1
26	**Assertion (A):** A perfect square number between 30 and 40 id 36. **Reason (R):** A perfect square is a number that can be expressed as the product of an integer by itself or as the second exponent of an integer. (a)Both Assertion and Reason are true but Reason is the correct explanation of Assertion (b)Both Assertion and Reason are true but Reason is not the correct explanation of Assertion. (c)Assertion is true but Reason is false. (d)Assertion is false but Reason is true.	1
27	**Assertion (A):** 1+3+5+7+9+11+13+15+17+19=121 **Reason (R):** The sum of first n odd natural number is n^2. (a)Both Assertion and Reason are true but Reason is the correct explanation of Assertion (b)Both Assertion and Reason are true but Reason is not the correct explanation of Assertion. (c)Assertion is true but Reason is false. (d)Assertion is false but Reason is true.	1
28	**Assertion (A):** The cube of any even number is even and the cube of any odd number is odd. **Reason (R):** An even number always has 2 as a factor when it is cubed, the factor of 2 is still present. An odd number has no factor of 2, so its cube also has no factor of 2. (a)Both Assertion and Reason are true but Reason is the correct explanation of Assertion (b)Both Assertion and Reason are true but Reason is not the correct explanation of Assertion. (c)Assertion is true but Reason is false. (d)Assertion is false but Reason is true.	1
29	Assertion (A) –27 is a cube number. Reasons (R)–A perfect cube is a number that can be expressed as the product of an integer by itself or as the second exponent of an integer.	1

	(A) Both A and R is true and R is correct explanation of A. (B) Both A and R is true and R is not correct explanation of A. (C) A is true but R is false. (D) A is false but R is True	
30	**Assertion (A):** 3456 is a perfect cube. **Reason (R):** In 3456 = $2^3 \times 3^3 \times 4^2$, not all exponents are multiple of 3. (a)Both Assertion and Reason are true but Reason is the correct explanation of Assertion (b)Both Assertion and Reason are true but Reason is not the correct explanation of Assertion. (c)Assertion is true but Reason is false. (d)Assertion is false but Reason is true.	1
	SECTION -B	
31	Find the number of non perfect square numbers between 7^2 and 8^2	2
32	What is the value of $79^2 - 78^2$	2
33	What is the sum of first 30 odd natural numbers ?	2
34	Is 4096 a perfect cube? If yes, then what is the number whose cube root is 4096?	2
35	By which smallest number must 5400 be multiplied to make it a perfect cube?	2
36	Find the smallest number by which 16384 be divided so that the quotient may be a perfect cube	2
37	If $\sqrt{15625}$ = 125, then find the value of $\sqrt{156.25} + \sqrt{1.5625}$	2
38	Find the square root of 121 by repeated subtraction.	2
39	Find the smallest square number that is divisible by each of the number 6,15 and 20.	2
	SECTION –C	
40	What is the smallest number by which 4608 may be multiplied so that the product is perfect cube?	3
41	Find the surface area of a cube whose volume is $343m^3$	3
42	Evaluate : $\sqrt[3]{\frac{0.027}{0.008}} \div \sqrt{\frac{0.09}{0.04}} - 1$	3
43	Find the cube root of 3375× (−729)	3
44	Find the value of $\sqrt{10 + \sqrt{25 + \sqrt{108 + \sqrt{169}}}}$	3
45	The area of a square field is $101\frac{1}{400}$ sq. m. Find the length of one side of the field	3
46	Find the smallest number by which 14175 be divided so that the number becomes a perfect square. Also find the square root.	3
47	The students of Class VIII of a school donated 2401 in all, for Prime Minister's National Relief Fund. Each student donated as many rupees as the number of students in the class. Find the number of students in the class.	3
	SECTION - D	
48	Mohan has to prepare a physics project in form of a cubical box for a social work campaign but he had a cuboidal box of sides 4 cm, 2 cm, 4 cm. Now he has to change it in the form of cube so that he can complete his project. For this, he needed more cuboids so that he can make his project in form of cube. (i) What is the volume of the cuboidal box? (a) 21 cm^3 (b) 32 cm^3 (c) 23 cm^3 (d) 42 cm^3	4

	(ii) How can we change cuboid into cube? (iii) How will we calculate number of cuboids needed to make it a perfect cube?	
49	Smart watches are a big innovation in the wearable industry , performing too many functions. The most common now a days is to count the number of steps. This has a big impact on health. Gunjan noticed the number of steps she walked on her smart watch in the evening and found it to be 23,328 Based on the above information , answer the following questions: (i) Is the given number a perfect cube ? (ii) Find the one's digit in the cube of the number 9999. (iii) If not, then what is the smallest number to be multiplied to make it a perfect cube? 	4
50	A school decided to award prizes to students for three values- discipline, cleanliness and regularity in attendance. The number of students getting prizes in the three categories are in the ration 2:3:4. If product of the ratio is 192. Based on the above case study give answer of the following questions: (i)Find the number of students getting prizes of each value. (ii) If the value of each prizes is Rs. 200, then find the total amount of prizes. 	4
51	Ravi designed a square courtyard inside his school with a tiled pattern. The total area of the courtyard is 2025 m^2**.** He decides to create a path of 1-meter width running all around the inside edge of the courtyard. The remaining inner square area (excluding the path) will be used to set up a play area. (a) What is the side length of the original square courtyard? What will be the side length of the square play area (after excluding the 1 m path from all sides)? (b) Calculate the area of the path in square meters.	4
52	A king wanted to reward his advisor, a wise man of the kingdom. So, he asked the wiseman to name his own reward. The wiseman thanked the king but said that he would ask only for some gold coins each day for a month. The coins were to be counted out in a pattern of one coin for the first day, 3 coins for the second day, 5 coins for the third day and so on for 30 days.  (a)Without making calculations, find how many coins will the advisor get in that month? (b) If the king had instead offered the advisor a reward of 1 coins on the first day, 4 on the second, 9 on the third, and so on, for 30 days, how many coins would the advisor receive in total?	4
	SECTION -E	
53	Three numbers are to one another as 2:3:4.The sum of their cubes is 33957. Find the numbers	5
54	A cuboid of dimensions 126m , 140m, 525 m gas been melted to form a cube .find the side of the cube	5
55	The area of square field is 49284m^2.Find the cost of fencing the field at Rs 15 per metre.	5

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