SRI KRISHNA COCHING CENTRE RMM

STD : X **UNIT TEST ONE** **MARKS: 50**

TIME : 1.15MIN **Relations and functions** **EXAM NO :**

I CHOOSE THE CORRECT ANSWERE 8×1=8

1. The sum of the exponents of the prime factors in the prime factorization of 1729 is
(1) 1 (2) 2 (3) 3 (4) 4

2. Using Euclid's division lemma, if the cube of any positive integer is divided by 9 then the possible remainders are
(1) 0, 1, 8 (2) 1, 4, 8 (3) 0, 1, 3 (4) 1, 3, 5

3. The first term of an arithmetic progression is unity and the common difference is 4. Which of the following will be a term of this A.P.
(1) 4551 (2) 10091 (3) 7881 (4) 13531

4. In an A.P., the first term is 1 and the common difference is 4. How many terms of the A.P. must be taken for their sum to be equal to 120?
(1) 6 (2) 7 (3) 8 (4) 9

5. If a, b, c are in A.P., a, b, din G.P, then a, a – b, d – c will be in
(1) A.P (2) G.P (3) A.P and G.P (4) none of these

6. The sum of 6 terms of the A.P 1, 3, 5, 7, ... is
(1) 25 (2) 49 (3) 36 (4) 30

7. The next term of an A.P : – 12, – 9, – 6, – 3, ... is
(1) 3 (2) 6 (3) 0 (4) none of these

8. The first 3 terms of A.P are 3y – 1, 3y + 5 and 5y + 1, then y is
(1) 5 (2) 1 (3) – 5 (4) 4

II ANSWERE ANY SIX OF THE FOLLOWING QUESTIONS. QUESTION NO.15 IS COMPULSORY. 6×2=12

9. Show that the square of an odd integer is of the form 4q + 1, for some integer q

10. Find the greatest number consisting of 6 digits which is exactly divisible by 24, 15, 36?

11. Find the number of integer solutions of $3x \equiv 1 \pmod{15}$

12. Determine the general term of an A.P. whose 7^{TH} term is – 1 and 16th term is 17

13. Find the 10th term of a G.P. whose 8th term is 768 and the common ratio is 2

14. Find the rational form of the number $\overline{0.123}$

15. A man saved Rs.16500 in ten years. In each year after the first he saved Rs.100 more than he did in the preceding year. How much did he save in the first year?

III ANSWERE ANY SIX OF THE FOLLOWING QUESTIONS. QUESTION NO.22 IS COMPULSORY. **6×5=30**

16. Use Euclid's Division Algorithm to find the Highest Common Factor (HCF) of (i) 340 and 412 (ii) 867 and 255 (iii)10224 and 9648 (iv) 84, 90 and 120

17. The sum of three consecutive terms that are in A.P. is 27 and their product is 288. Find the three terms

18. Find the sum of all natural numbers between 300 and 600 which are divisible by 7

19. If $S_1, S_2, S_3, \ldots\ldots S_m$ are the sums of n terms of m A.P.'s whose first terms are 1, 2, 3,...., m and whose common differences are 1, 3, 5, ..., (2m − 1) respectively, then show that $S_1+S_2+S_3+\ldots+S_m=\frac{1}{2}mn(mn+1)$

20. A man joined a company as assistant Manager. The company gave him a starting salary of Rs. 60,000 and agreed to increase his salary 5% annually. What will be his salary after 5 years?

21. Rekha has 15 square colour papers of sizes 10 cm, 11 cm, 12 cm,..., 24 cm. How much area can be decorated with these colour papers?

22. Find the G.P. in which the 2^{nd} term is $\sqrt{6}$ and the 6^{th} term is $9\sqrt{6}$

ALL THE BEST