# MADRAS INSTITUTE OF TECHNOLOGY
## ASSOCIATION OF COMPUTER TECHNOLOGISTS
## PRAYATNA'20
# MATH-O-MANIA

**DURATION: 30 MINS**

**RULES:**
- **WRITE YOUR NAME, REG.NO., DEPT., AND MOBILE NO. ON THE ANSWER SHEET**.
- **STICK YOUR QR CODE ON THE ANSWER SHEET AND WRITE YOUR UNIQUE PARTICIPANT ID BELOW IT.**
- **KEEP YOUR MOBILE IN AIRPLANE MODE.**
- **DON'T LEAVE THE APP DURING THE TEST.**

1. Two trains running in opposite directions cross a man standing on the platform in 27 seconds and 17 seconds respectively and they cross each other in 23 seconds. The ratio of their speeds is:
   - A. 1:3
   - B. 3:2
   - C. 3:4
   - D. None of these

2. When a plot is sold for Rs. 18,700, the owner loses 15%. At what price must that plot be sold in order to gain 15%?
   - A. 21,000
   - B. 22,500
   - C. 25,300
   - D. 25,800

3. What is the unit digit in $\{(6374)^{1793} \times (625)^{317} \times (341)^{491}\}$?
   - A. 0
   - B. 2
   - C. 3
   - D. 5

4. A alone can do a piece of work in 6 days and B alone in 8 days. A and B undertook to do it for Rs. 3200. With the help of C, they completed the work in 3 days. How much is to be paid to C?
   - A. 375
   - B. 400
   - C. 600
   - D. 800

5. The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 4% per annum is Re. 1. The sum (in Rs.) is:
   - A. 625
   - B. 630
   - C. 640
   - D. 680

6. How many times do the hands of a clock coincide in a day?
   - A. 21
   - B. 22
   - C. 23
   - D. 24

7. In how many different ways can the letters of the word 'CORPORATION' be arranged so that the vowels always come together?
   - A. 2520
   - B. 2880
   - C. 5760
   - D. 50400

8. A can contains a mixture of two liquids A and B is the ratio 7 : 5. When 9 litres of mixture are drawn off and the can is filled with B, the ratio of A and B becomes 7 : 9. How many litres of liquid A was contained by the can initially?
   - A. 10
   - B. 20
   - C. 21
   - D. 25

9. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?
    A. 10/21        B. 11/21        C. 2/7        D. 5/7

10. The percentage increase in the area of a rectangle, if each of its sides is increased by 20% is:
    A. 40%        B. 42%        C. 44%        D. 46%

11. Pick the odd one out: 3, 5, 7, 12, 17, 19

12. X and Y can do a piece of work in 20 days and 12 days respectively. X started the work alone and then after 4 days Y joined him till the completion of the work. How long did the work last?
    A. 6 days        B. 10 days    C. 15 days    D. 20 days

13. Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?
    A. 210        B. 1050        C. 21400    D. 25200

14. Pipes A and B can fill a tank in 5 and 6 hours respectively. Pipe C can empty it in 12 hours. If all the three pipes are opened together, then the tank will be filled in:
    A. $1\,{}^{3}/_{17}$ hrs        B. $2\,{}^{8}/_{11}$ hrs    C. $3\,{}^{9}/_{17}$ hrs    D. $4\,{}^{1}/_{2}$ hrs

15. In a class, there are 15 boys and 10 girls. Three students are selected at random. The probability that 1 girl and 2 boys are selected, is:
    A. 21/46        B. 25/117    C. 1/50        D. 3/25

16. A, B, C and D are four consecutive odd numbers and their average is 42. What is the product of B and D?
    A. 1860        B. 1897        C. 1845        D. 1677

17. At present Sravan is four times Jagan's age. After 8 years Sravan will be 3 times Jagan's age. How many times will Sravan's age be in another 8 years times with respect to Jagan's age?
    A. 2.5        B. 3        C. 4.5        D. 2

18. Look at this series: 8, 6, 9, 23, 87, ... What number should come next?
    A. 128        B. 226        C. 324        D. 429

19. Santhosh is travelling on his cycle and has calculated to reach point A at 2 P.M. if he travels at 10 kmph, he will reach there at 12 noon if he travels at 15 kmph. At what speed must he travel to reach A at 1 P.M.?
    A. 8 Kmph        B. 11 Kmph    C. 12 Kmph    D. 14 Kmph

20. The population of a town increased from 1,75,000 to 2,62,500 in a decade. The average percent increase of population per year is:
    A. 4.37%        B. 5%        C. 6%        D. 8.75%