Rewarding Career   **Test Code: MTNCL – II**   **Questions: 25**   **Max. Time: 1 Hr.**

1. If $\sqrt{a} + 1/\sqrt{a} = 2$ then $a + 1/a = ?$
   (a) $1/2$ (b) 2 (c) -2 (d) $-1/2$

2. Drawn on the sand of a desert island was this:

$$\left(\sqrt{2+\sqrt{2+\sqrt{2+...}}}\right) + \left(\sqrt{6+\sqrt{6+\sqrt{6+...}}}\right) \# \left(\sqrt{30+\sqrt{30+\sqrt{30+...}}}\right)$$

   Unfortunately, a monkey has covered a symbol with one of his coconuts (shown here by symbol#). What symbol should be underneath the coconut?
   (a) $=$ (b) $<$ (c) $>$ (d) Can't be found

3. You are faced with 12 bals and a balance scale (which unlike a graduated scale, tells you only whether the right pan's contents are heavier). All but one of the balls are identical in weights; this odd ball is either heavier or lighter than all the rest. What is the minimum number of weighing in which it is possible to identify the odd ball?
   (a) 3   (b) 4   (c) 5   (d) 2

4. If k units of a product can be made by hand in q hours, and by machine in f hours, hourly production by machine is greater than hourly production by hand by
   (a) $k/(f-q)$ (b) $fq/(k(q-f))$
   (c) $k(q-f)/fq$ (d) none of these

5. Two candles of equal length start burning at the same instant. One of the candles will take 4 hours to burn fully, and the other 3 hours. By the time one candle is three time the length of the other, the candles would have burnt for...
   (a) 3 hours 30 min   (b) 3 hours 40 min
   (c) 2 hours 40 min   (d) 2 hours 12 min

6. If A < B which of the following numbers is always greater than A and less than B?
   1. B – A   2. (A+B)/2   3. $B^2 - A^2$ 4. AB/2
   (a) 1 only   (b) 2 only
   (c) 2 and 3   (d) 1, 2 and 4

7. In a circle, diameter AB = 2a. C is a point moving along the circumference from A to B. The area of the triangle ABC thus formed would
   (a) go on increasing as C moves from A to B
   (b) go on decreasing as C moves from A to B
   (c) be maximum when equal to a^2
   (d) be maximum when equal to $a^2/2$

8. Each edge of the cube is increased by 50%. The percentage increase in the surface area is
   (a) 50   (b) 150
   (c) 300   (d) 125

9. Nishu takes 4 hours to go 10 km. downstream and 6 hrs. to go same distance upstream. How many hours does she take to go 50 km in still water?
   (a) 25   (b) 24
   (c) 20   (d) None

10. Three men A, B and C walk along the circumference of circle of radius 280m at the rate of 160, 120 and 105 m per minute respectively. If they start together and walk in the same direction, when will they first be together again?
    (a) 400 min   (b) 342 min
    (c) 200 min   (d) 352 min

11. What is the maximum possible value of $7\cos\theta + 24\sin\theta$
    (a) 31   (b) 24
    (c) 17   (d) 25

12. An antique is sold at successive discount of 10% and 12%. What is the overall discount?
    (a) 18%   (b) 12.7%
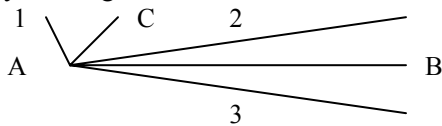   (c) 11%   (d) 20.8%

13. How many primes are there between 43 and 60?
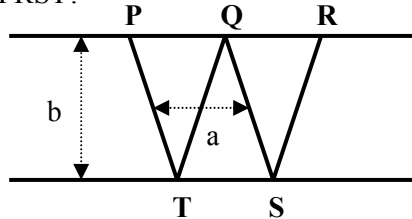   (a) 3   (b) 4   (c) 2   (d) 5

14. If the sides of a right angled triangle are in AP they could be in the proportion.
    (a) 5:6:7   (b) 7:9:11
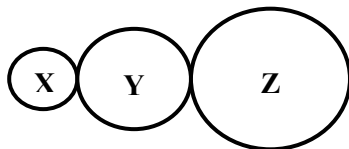   (c) 3:2:1   (d) 6:8:10

15. A train is moving in direction AB and a passenger on the train walks from one side of the compartment to other in the direction AC. In what direction is he actually moving relative to the earth?

    (a) 1   (b) 2   (c) 3   (d) 4

16. PQST and QRST are parallelograms, what is the area of PRST?

    (a) 3ab/2   (b) ab/2
    (c) ab   (d) 3ab

Directions (Q.17 – Q.19): X, Y and Z are gears. X has 20 teeth, and drives Y. Y has 40 teeth and drives Z. Z has 100 teeth.
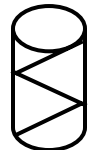

17. If X turns in clockwise direction, then Z will turn
    (a) in clockwise direction
    (b) in anticlockwise direction
    (c) first in clockwise and then anticlockwise direction
    (d) insufficient information

18. If Z makes a complete turn, Z will make
    (a) 4 turns   (b) 5 turns   (c) 1/4 turn   (d) 6 turns

19. When will all three gears be in the same position as they were before starting to turn?
    (a) After 1 complete rotation of Z.
    (b) After 5 complete rotations of X.
    (c) After 4 complete rotations of Y.
    (d) After 10 complete rotations of X.

20. At what time between 4 and 5 will the minute and hour hands of a watch coincide?
    (a) 20 min past 4   (b) 21 min past 4
    (c) 240/11 min past 4   (d) none of these

21. Sum of the infinite series $0.4 + 0.44 + 0.444 + ...$ is
    (a) 49   (b) 0.9   (c) infinite   (d) 1

Direction (Q. 22 – Q. 23): Select from the alternative, a word nearly similar in meaning to the given word or phrase.

22. Quiescent
    (a) Dormant   (b) Still sxisting
    (c) Silent   (d) Inquiring

23. A person with a long experience of any occupation:
    (a) Expert   (b) Veteran
    (c) Savant   (d) Wizard

24. If taut strings goes round a right circular cylinder of diameter 14 cm and height 33 cm, as shown in the figure. What is the length of the string?
    (a) 50 cm   (b) 55 cm
    (c) 60 cm   (d) Data insufficient

25. Jitender, Vinay, Uday, Harsh and Manila have cash transactions with one another. Manila has put a symbol on a hundred rupee note which was spotted with Jitender after three days. In how many ways could this have happened, if the note never came back to a person twice.
    (a) 12   (b) 14   (c) 16   (d) 18