Mock Test Number: 002

1. Consider a well of 100 mt depth and a frog at the bottom of the well. It climbs 3mt in day time n slides down 2mt during night. How many days it needs to climb the well?
   A. 38 days
   B. 44days
   C. 98days
   D. 99days

Answer: C

In complete one day including day and night hours, climbs up = 3mt down = 2mt

Net = 1mt above

∴ So, on 97th day he will be at 97mt height

on 98th day he will climb another 3mt

∴ 97 + 3 = 100 mt

∴ 98 days

2. The scores in class exams and final exam of 2 students are given as below:

Class exam	Final exam
3	1.4
3.5	1.65
?	6

Find the Class exam score of a student who has scored 6 in the Final exam.

   A. 12.2
   B. 13
   C. 10.1
   D. 10.2
   E. 12.5

Answer: A

$3 \xrightarrow{3 \times 0.5 - 0.1} 1.4$

$3.5 \xrightarrow{3.5 \times 0.5 - 0.1} 1.65$

$N \xrightarrow{N \times 0.5 - 0.1} 6$

$N \times 0.5 - 0.1 = 6 \Rightarrow N = 12.2$

3. Three independent mechanisms A, B and C have been incorporated for fuel saving in a car producing respectively 30%, 20% and 40% efficiency. Assuming that they operate independently, what is the net fuel efficiency achieved?
   A. 61 %
   B. 64%
   C. 62%
   D. 66.4%
   E. 69%

Answer: D

For A, 30% of 100 i.e $70 = (30 \times 100)/100 = 30$ ——— (I)

For B, 20% of 70 i.e $56 = (70 \times 100)/100 = 14$ ——— (II)

For C, 40% of 56 i.e $33.6 = (56 \times 100)/100 = 22.4$ ——— (III)

Adding all, $30 + 14 + 22.4 = 66.4$

4. Evaluate the expression
M (373, 7) + R (5.8) + T (7.7) - R (3.4) where M stands for modulo arithmetic, R stands for Round-off operation and T stands for Truncation Operation

A. 13
B. 16
C. 12
D. 19
E. 21

Answer: C

Modulus = Remainder
Round-off = Nearest Integer Value
Truncation = Only Integer Part
M(373,7) = 2
R(5.8) = 6
T(7.7) = 7
R(3.47) = 3
2+6+7-3 = 12

5. How would the decimal number 520 be represented in a base -7 number System?

A. 1564
B. 1234
C. 1342
D. 1562
E. 1672

Answer: C

7 | 520
7 | 74 2
7 | 10 4
1 3

$(1342)_7 = (520)_{10}$

6. Suppose the first and second letters in the word CONSTITUTIONAL was interchanged, also the third and fourth letters, the fifth and sixth etc. Print the letter that would then be the tenth letter counting from the right.

A. C
B. U
C. I
D. L

Answer: C

OCSNITUTITNOLA
10 9 8 7 6 5 4 3 2 1

10th letter from right = I

7. In the following series, how many Ws are there such that each W is followed by a C next to it if the C is not followed by an S next to it?
W C W S Q M W C S M C W C C W Q M W
W C Q W C S C W A M C W C M

A. 3
B. 5
C. 6
D. 4
E. 7

Answer: D

The four are underlined above.

8. Five funds A, B, C, D and E have selected 5 distinct numbers, make the following statements.
A: I have selected the biggest number.
B: I have neither selected the biggest number nor the smallest number.
C: I have selected the smallest number.
D: I have not selected the smallest number.
E: I have neither selected the biggest number nor the smallest number.
If four of them speaking the truth and one of them is lying, who is the liar?

A. B
B. C
C. D
D. A,

Answer: C

Among the options E is not the liar. If E is not the liar, B also cannot be the liar as they have identical statements. A & C have statements which do not contradict with B, E only D's statement contradict with others, as accordingly to D he can take any value except the smallest, whereas A is the largest.

9. There are 60 slots around a circle, numbered from 1 to 60. A man starts from the 1st slot than 5th slot and jumps into the 9th slot and so on. In which slot will he land in his 2200th jump?

A. 45
B. 41
C. 1
D. 5

Answer: B

After n^{th} jump the man is at slot no. T_n

$T_n = 1 + n \times 4 = 4n + 1$

$\therefore$ After 2200th jump he will be at $T_{2200} = 4 \times 2200 + 1$
$= 8801^{th}$ slot.

Remainder $= \frac{8801}{60} = 41$. $\therefore$ he will be at 41^{th} slot.

10. Three non integers' numbers X, Y, Z are such that the mean is M and the median is 5. If M is 10 more that the smallest number and 15 less than biggest number, Find the values of X+Y+Z.

A. 15
B. 5
C. 20
D. 30

Answer: D

$X+Y+Z = 3M$

$M = X+10 \Rightarrow X = 10-M$

$M = Z-15 \Rightarrow Z = M+15$

$Y = 5$ ($\because$ Median $= 5$)

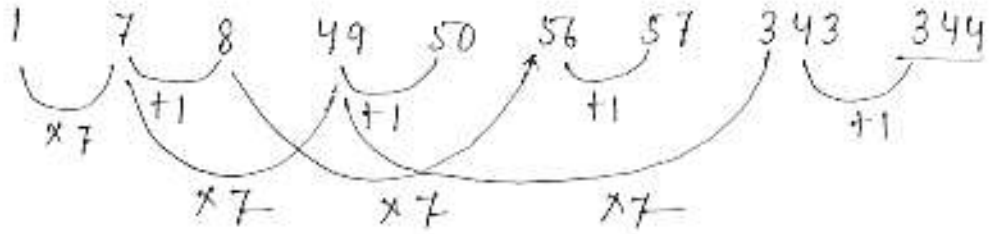
$(M-10)+5+(M+15) = 3M$

$M = 10$ $\quad X+Y+Z = 3\times10 = 30$

11. Next number in the series 1,7,8,49,50,56,57,343

A. 345
B. 346
C. 344
D. 349

Answer: C



Hence 344 is the next term.

12. How many alphabet s need to be there in a language if o ne were to make 1 million distinct t 3 digit initials using the alphabets of the language?

A. 26
B. 50
C. 100
D. 1000

Answer: C

Let there N Alphabet

$N \times N \times N = N^3$ (No. of 3 digit ineteal)

So no. of distinct ineteal would be N^3.

$N^3 \geq 10^6$ (1 million)

$N \geq 10^2$

$N \geq 100$

13. How many positive integer so lutions does the equation $2x+3y = 100$ have?

A. 50
B. 33
C. 16
D. 17

Answer: C

No. of integral solutions is given by

$\frac{100}{2 \times 3} = 16$ where as [16] is the greatest integer function.

14. A hollow spherical metallic ball has an external diameter 6 cm and is 1/2c m thick. The volume of metal(in cm) used in the ball is :3

A. 37
B. 40
C. 41
D. 47

Answer:

volume of metal

$= \frac{4}{3} \pi (3)^3 - \frac{4}{3} \pi (2.5)^3$

$= \frac{4}{3} \pi (3^3 - 2.5^3)$

$= \frac{45.5 \times \pi}{3} = 47.62$

15. A and B are travelling from a distance X and Y. A starts at 12p.m at a speed of 6km/hr and B starts at 1.30p.m at a speed of 8km/hr. At what time will be the 3 km ahead of A.?

A. 3p.m
B. 4.30p.m
C. 6p.m
D. 7.30p.m

Answer: D

At 1.30pm A will be ahead of B by $1.5 \times 6 = 9$ Km.

Now B starts,

Relative speed between A & B,

$= 8 - 6 = 2$ Km/hr

Time taken for B to take ahead of 3Km of A,

$T = \frac{D}{\text{Relative speed}} = \frac{9+3}{2} = 6$ hrs

6 hrs after 1.30 is 7.30pm

i.e at 7.30pm from 1.30pm.

16. Abhishek start s to paint a fence on o ne day. On the second day, two mo re friend of Abhishek joins him. On the third day 3 more fiends of him join him and so on. If the fence is completely paint end this way in exactly 20 day s, then find the number of ways in which 10 girls painting together can paint the fence completely. Given that every girl can paint twice as fast as Abhishek and his friends (Boys)? (Assume that the
friends of Abhishek are all boys)

A. 14.9
B. 20.5
C. 10.5
D. 11.5

Answer: C

Suppose each boy does 1 unit of work then each girl does 2 units/day.

Painting done in subsequent day would be.

1 + 3 + 6 + 10 ..... 20 terms
2 3 4

Sum of integer series = $\frac{n(n+1)}{2}$

$\therefore S_{20} = \frac{20 \times 21}{2} = 210$ units.

210 units would be done by 10 girl = $210/20 = 10.5$

17. Which of the following numbers must be added to 5678 to give a reminder 35 when divided by 460?

A. 487
B. 337
C. 890
D. 278

Answer: B

Let N be added to 5678 so that 35 is the reminder. When devided by 460,

$5678 + N = 460 + 35 \Rightarrow N = 460Q - 5643$

Take the value of Q such that it becomes more than 5643.

$\therefore Q = 13$, $N = 337$.

18. A mixture of 66 liters of milk and water are in the ratio of 5 : 1, water is added to make the ratio 3 : 5. Find the quantity of water added.

A. 20 liters
B. 18 liters
C. 22 liters
D. 24 liters

Answer: C

Milk — 55
water — $11 + x$

$\therefore \frac{55}{11+x} = \frac{5}{3} \Rightarrow \frac{11}{11+x} = \frac{1}{3}$

$x = 22$ litre

19. A clock which loses 50 seconds every two minutes is set at 6.00 P.M. on a certain day. What is the time shown by this watch if the current time is 3.00 P.M.?

A. 4p.m
B. 9p.m
C. 5p.m
D. 6:15a.m

Answer: D

If current time is 3·00PM, then a total of 21 Hour is elapsed which means a loss of

$$\frac{21 \times 60}{2} \times \left(\frac{50}{60}\right) \text{ mins} = 525 \text{ mins}$$
$$= 8\text{Hr } 45\text{mins}$$

So time in the watch should be 6:15AM.

20. A certain shade of Grey paint is obtained by mixing 3 parts of white with 5 parts of black paint. If 2 gallons of mixture is needed and the individual colors can be purchased only in one gallon or half gallon cans, what is the least amount of paints in gallons that must be purchased in order to measure out the portions needed for mixture?

A. 2
B. 2 and ½
C. 3
D. 3 and ½
E. 4

Answer:B

2 gallon of gray paint needs $2 \times \frac{3}{3+5} = 2 \times \frac{3}{8} = 3/4$ gallons of white paint and

$2 \times 5/8 = 5/4$ gallons of black paint.

To get $\frac{3}{4} = 0.75$ gallons of white paint, we should purchase at least 1 gallon of white paint;

To get $5/4 = 1.25$ gallons of black paint we should purchase at least 1.5 gallons of black paint.

Total = 1+1.5 = 2.5

21. Which set of data exhibits a higher Standard Deviation?

A. 7, 0, -7, 7, 0, -7
B. -7, -7, -7, -7, -7, -7
C. 7, -7, 7, -7, 7, -7
D. 7, 7, 7, 7, 7, 7
E. 7, 7, 7, 0, 7, 7

Answer: C

22. The three numbers in brackets represent the length of the sides of a triangle. Which of these does not represent a proper triangle?

A. (2m, 3m, 4m)
B. (1m, 2m, 4m)
C. (3m, 4m, 5m)
D. (3m, 3m, 3m)
E. (5m, 3m, 5m)

Answer: B

Sum of any 2 sides should be greater than 3rd,

$1+2 < 4$

Hence B.

23. If n = 10 x 18 x 22, which of the following is NOT an integer?

A. n / 132
B. n / 55
C. n / 45
D. n / 20
E. n / 78

Answer: E

$N = 10 \times 18 \times 22$

$= 5 \times 2 \times 6 \times 3 \times 11 \times 2$

$= 2^2 \times 3 \times 5 \times 2 \times 3 \times 11$

$= 2^3 \times 3^2 \times 5 \times 11$

Out of option

$78 = 13 \times 2 \times 3$

So E.

24. Clock loses 1% time during the first w eek and then gains 2% time during the next one week. If the clock was set right at 12 noon on a Sunday, w hat will be the time that the c lock will show exactly 14 days from the time it was set right?

A. 1: 36: 48
B. 1: 40: 48
C. 1: 41: 24
D. 10: 19: 12

Answer: B

In a week there are 168 hrs.

1st week $\rightarrow -1\% = -1.68$ hr

2nd week $\rightarrow +2\% = +1.68 \times 2 = 3.36$ hr

Net $= +1.68$ hr

$+1$ hr $+$

$+0.68$ hr $= 0.68 \times 60 = 40.8$ min

$= 40$ min 48 sec

∴ Time will be 1:40:48

25. 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

Answer: B

S_A : Speed of Train A
S_B = Speed of Train B
L_A = Length of Train A
L_B = Length of Train B

$S_A = \frac{L_A}{27}$ $\quad S_B = \frac{L_B}{17}$

$S_A + S_B = \frac{L_A + L_B}{23}$

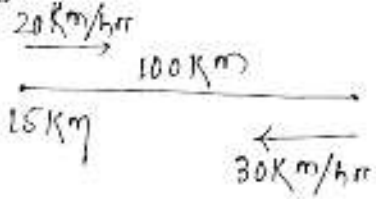
$23 S_A = S_B(23) = 27 S_A + 17 S_B$

$6 S_B = 4 S_A \Rightarrow \boxed{S_A / S_B = 3/2}$

26. Two point's r there two people from A running to same direction with speed 20 km/hr. & 15/hr. respectively and from other end another person running to opposite direction with 30 km/hr.? Distance between them 100 km??At what time they will meet?

A. 3 hrs
B. 2 hrs
C. 4 hrs
D. 8 hrs

Answer: B



$T = \frac{\text{Distance}}{\text{Relative speed}}$

$= \frac{100}{50} = \boxed{2 \text{ hrs.}}$

27. If there are six periods in each working day of a school, in how many ways can one arrange 5 subjects such that each subject is allowed at least one period?

A. 1200 ways
B. 2400 ways
C. 3600 ways
D. 4800 ways

Answer: C

Select any 5 period out of 6 = $^6C_5$ ways
Arrange these 5 subject in = 5! ways
From 6th period we have 5 choice,

$^6C_5 \times 5! \times 5 = \boxed{3600 \text{ ways.}}$

28. An article manufactured by a company consists of two parts X and Y. In the process of manufacturing of part X, 9 out 100 parts many be defective. Similarly, 5 out of 100 are likely to be defective in the manufacturer of Y. Calculate the probability that the assembled product will not be defective?

A. 0.6485
B. 0.6565
C. 0.8645
D. none of these

Answer: C

Probability of assembled product defective P(D)

$P(D) = P(X \text{ defective}) + P(Y \text{ defective}) - P(XY \text{ defective})$

$= 0.09 + 0.05 - 0.09 \times 0.05$

$= 0.1355$

Not defective $= 1 - 0.1355$

$= \boxed{0.8645}$

29. There are six multiple choice questions in the examination. How many sequences of answers are possible, if the first two questions have 3 choices each, the next two have 4 choices each and last two have 5 choices each?

A. 4000
B. 3200
C. 3400
D. 3600

Answer: D

Q. No.	1	2	3	4	5	6
No. of choices	3	3	4	4	5	5

$= (3 \times 4 \times 5)^2 = \boxed{3600}$

30. My name is PREET. But my son accidentally types the by interchanging a pair of letters in my name. What is the probability that despite this interchange, the name remains unchanged?

A. 5%
B. 10%
C. 25%
D. 12.5%

Answer: B

No. of ways of selecting a pair ${}^5C_2 = 10$ ways

No. of ways by which name would not change = 1

Prob. $= \left(\frac{1}{10}\right) = 10\%$

31. The sequence {A (n)} is defined by A (1) =2 and A (n+1) =A (n) +2n. What is the value of a (100)

A. 9000
C. 9902
B. 9125
D. 9903

Answer: C

$A(2) = A(1) + 2 \times 1 = 2 + 2 = 4 = 2^2 - 0$

$A(3) = A(2) + 2 \times 2 = 4 + 4 = 8 = 3^2 - 1$

$A(4) = A(3) + 2 \times 3 = 8 + 6 = 14 = 4^2 - 2$

$A(5) = A(4) + 2 \times 4 = 14 + 8 = 22 = 5^2 - 3$

$A(n) = n^2 - (n-2)$

$\Rightarrow A(100) = 100^2 - 98 = \boxed{9902}$

32. There are three buckets. Of 8, 5 n 3 liters...out of which only 8 liter buckets is fully filled...u have to fill exact 4-4 liter liquid in 8 and 5 liter bucket by using only these buckets in minimum number of steps.

A. Three steps
C. Seven steps
B. Five steps
D. Nine steps

Answer: C

8	5	3
8	0	0
3	5	0
3	2	3
6	2	0
6	0	2
1	5	2
1	4	3
4	4	0

So seven steps

33. n! Have 13 zeros than what is the highest and lowest value of n??

A. $55 \leq n \leq 59$
C. $45 \leq n \leq 52$
B. $35 \leq n \leq 26$
D. $55 \leq n \leq 42$

Answer: A

If n has 13 zeroes, they it must have a maximum power of 13 of the prime no. 5 in its value.

So take any random number as value of n say 50

150 power of 5 i's $50/5 = 10$

$10/5 = 2$

$\therefore n = 55$ $155 = 55/5 = 11$ $11/5 = 2$ we need power of 13.

So, maximum we can upto 59 as $11/5 = 2$ we have 5^{13}

$\boxed{55 \leq n < 59}$

34. MARKED PRICE OF AN ITEM IS 60% OF IT'S MRP. A PERSON BUYS THE ITEM AT HALF OF IT'S MARKED PRICE.HOW MANY PERCENTAGE DISCOUNT IS GIVEN??

A. 50%
B. 70%
C. 90%
D. 20%

Answer: B

Let MRP be P.

Marked price = $0.6P = 3/6\ P$

CP for the item was = $1/2$ MP = $\frac{3}{10}P$

% discount is $\frac{P - 3/10\ P}{P} \times 100$

= 70%

35. If m is an odd integer and n is even integer which of the following is definitely ODD?

A. $(2m + n)(m-n)$
B. $(m + n^2) + (m-n^2)$
C. $M^2 + mn + n^2$
D. $M + n$

Answer: C & D