



Mock Test Number: 003

1. In a class there are 60% of girls of which 25% poor. What is the probability that a poor girl is selected as leader?

A. $15/100$
B. $16/100$

C. $21/100$
D. $25/100$

Answer: A

$$\begin{array}{l} 60\% \text{ G} \\ \swarrow \\ 15 \text{ poor} \end{array} \quad \begin{array}{l} 40\% \text{ B} \\ \searrow \\ p(\text{poor Girl}) = \frac{15}{100} \end{array}$$

2. A completes a work in 20 days B in 60 days C in 45 days. All three persons working together on a project got a profit of Rs.26000 what is the profit of B?

A. 4875
B. 4458

C. 4900
D. 4822

Answer: A

$$\begin{aligned} \text{LCM}(20, 60, 45) &= 180 \\ \text{A's rate} &= 180/20 = 9 \text{ units/day} \\ \text{B's rate} &= 180/60 = 3 \text{ units/day} \\ \text{C's rate} &= 180/45 = 4 \text{ units/day} \\ &\quad \underline{16 \text{ units/day}} \\ \therefore \text{B's profit} &= \frac{3}{16} \times 26000 \\ &= 4875/- \end{aligned}$$

3. A completes a piece of work in $3/4$ of the time in B does, B takes $4/5$ of the time in C does. They got a profit of Rs. 40000 how much B gets?

A. 12,000
B. 12,766

C. 12,796
D. 12,256

Answer: B

$$\begin{aligned} \text{Let C's efficiency} &= C \\ \text{B's efficiency} &= \frac{5}{4} C \\ \text{A's efficiency} &= \frac{4}{3} \times \frac{5}{4} C = \frac{5}{3} C \\ \therefore \frac{5}{3} C + \frac{5}{4} C + C &= 40,000 \\ \Rightarrow C &= \frac{40000 \times 12}{47} \\ \text{B's share} &= \frac{5}{4} C = \frac{5}{4} \times \frac{40000 \times 12}{47} = 12,766/- \end{aligned}$$

4. Bhanu spends 30% of his income on petrol on scooter 20% of the remaining on house rent and the balance on food. If he spends Rs.300 on petrol then what is the expenditure on house rent?

A. 150
B. 180

C. 140
D. 120

Answer: C

$$30\% \text{ of Income} = 300/- \text{ on petrol}$$

$$\therefore \text{Income} = 1000$$

$$\text{Out of } 1000, 300 \text{ on Petrol, } 1000 - 300 = 700 \text{ remaining}$$

$$\text{On house rent, } 20\% \text{ of } 700$$

$$= 140$$

$$700 - 140 = 560 \text{ on food. So ans. is } 140.$$

5. Let $\exp(m, n) = m$ to the power n . If $\exp(10, m) = n \exp(2, 2)$ where m and n are integers then $n =$

A. 26
B. 29

C. 25
D. 24

Answer: C

$$10^m = N \times 2^2$$

$$2^m \times 5^m = N \times 2^2$$

$$m = 2$$

$$\therefore N = 5^2 = 25$$

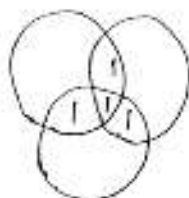
6. THREE GROUPS :: X_1, X_2, X_3

A, B COMMON TO ALL THREE. THEN ATLEAST 1 ELEMNT COMMON TO 2 IE
 $X_1, X_2, X_2, X_3, X_3, X_1$. FIND
MINIMUM ELEMENTS IN EACH GROUP.

A. 2
B. 3

C. 4
D. 5

Answer: C



7. How many vehicle registration plate numbers can be formed with digits 1, 2, 3, 4, and 5 (no digits being repeated) if it is given that registration number can have 1 to 5 digits?

A. 205

C. 325

B. 100

D. 105

Answer: C

$$\begin{array}{rcl}
 5 \text{ digit} & 5 \times 4 \times 3 \times 2 \times 1 & = 120 \\
 4 \text{ digit} & 5 \times 4 \times 3 \times 2 & = 120 \\
 3 \text{ digit} & 5 \times 4 \times 3 & = 60 \\
 2 \text{ digit} & 5 \times 4 & = 20 \\
 1 \text{ digit} & 5 & = 5 \\
 \hline
 & & 325
 \end{array}$$

8. A) In how many ways can 3 postcards can be posted in 5 postboxes?

B) In how many ways can 5 postboxes hold 3 post cards?

A. 152

C. 100

B. 125

D. 265

Answer: B

$$\begin{array}{l}
 A) 5^3 = 125 \\
 B) 5^3 = 125
 \end{array}$$

9. F (n) is a function...where $f(f(n)) + f(n) = 2n + 3$.

F (n) = 0; find f (2012)?

A. 1

C. 0

B. 2

D. 5

Answer: C

$$\begin{aligned}
 f(0) + 0 &= 2 \times 0 + 3 \quad (\text{putting } f(x) = 0 \text{ in the equ. given}) \\
 \Rightarrow f(0) &= 3
 \end{aligned}$$

If $f(x) = 0$, so, the value of function is independent of x, hence $f(2012) = 0$.

10. There are two glasses A and B. A contains orange juice and B contains apple juice in same quantity. Some amount orange juice from glass A is transferred to glass B. The juice in glass B is mixed well. Then again the same amount of juice from B is transferred to A. Compare the quantities of apple juice in A and orange juice in B.

A. Equal.

B. Greater.

C. 10 times more.

D. None of these

Answer: A

Initially A B
Orange Apple
Finally Orange: Apple Apple: Orange
 a:b a:b → Ratios becoming
 inverse, i.e.,
Orange: Apple is (A) i.e. a:b.
then Orange: Apple (i.e. B) will be b:a

11. There is a safe with a 5 digit number as the key. The 4th digit is 4 greater than the second digit, while the 3rd digit is 3 less than the 2nd digit. The 1st digit is thrice the last digit. There are 3 pairs whose sum is 11. Find the number.

A. 65289

C. 12565

B. 65292

D. 92531

Answer: B

$3a$ $b = 3$ or 4 or 5 $b = 3$ $b = 4$ $a = 1$ or 2 or 3

Go one by one for value of b & take higher value as sum of three pairs has to be 11.

Take $b = 5$ 3 5 2 9 1 → only 1 pair is resulting in 11.

Now take $a = 2$ 6 5 2 9 2 → Here we have 3 pairs resulting in 11.

12. There are 111 players participating in a singles tennis tournament. The player who is losing will be out of the tournament. For each and every match, One new ball is taken. Find the no. of balls required for the entire tournament.

A. 120 balls

C. 220 balls

B. 110 balls

D. 258 balls

Answer: B

No. of New balls = no. of matches played
No. of matches in a knock-out tournament
= $N - 1$, N = no. of participants
= $111 - 1 = 110$ matches = 110 new balls.

13. A special lottery is to be held to select a student who will live in the only deluxe room in a hostel. There are 100 Year-III, 150 Year-II, and 200 Year-I students who applied. Each Year-III's name is placed in the lottery 3 times; each Year-II's name, 2 times; and each Year-I's name, 1 time. What is the probability that a Year-III's name will be chosen?

A. $1/8$

C. $2/7$

B. $2/9$

D. $3/8$

Answer: D

$$P(\text{3rd year}) = \frac{\text{No. of 3rd year names}}{\text{total no. of names}} \\ = \frac{3 \times 100}{3 \times 100 + 2 \times 150 + 1 \times 200} = \frac{3}{8}$$

14. At 15:15 pm railway time, what will be the angle between minute and hour hand?

A. 0 degree

C. 360 degrees

B. 180 degrees

D. both a and c

Answer: D

At 15:15 both minute and hour hands will be in same position. Hence the angle between them will be zero-degrees. However, 360 degree also means both minute & hour hands are in same position.

15. A gambler has in his pocket a fair coin and a two-headed coin. He withdraws a coin at random and flips it twice. If the first flip is Heads, what is the probability that the second flip is Heads?

A. $1/3$

C. $1/4$

B. $3/4$

D. $1/6$

Answer: B

Using the rule of conditional probability $P(\text{2nd toss head} / \text{1st toss head})$ is read as probability of getting 2nd toss as head knowing that 1st toss head has already resulted in head.

$$P(\text{2nd head} / \text{1st head}) = \frac{P(\text{2nd head \& 1st head})}{P(\text{1st head})}$$

If fair coin is selected, the probability is

$$P(\text{2nd} / \text{1st}) = \frac{1}{2} \times \left(\frac{1}{2} \right) / \left(\frac{1}{2} \right) = \frac{1}{2}$$

If defective coin is selected,

$$P(\text{2nd/1st}) = \frac{1}{2} \times \frac{(1)}{(1)} \times (1) = \frac{1}{2} \quad \text{Final probability} = \frac{1}{4} + \frac{1}{2} = \frac{3}{4}$$

16. When 2256 is divided by 17 the remainder would be

A. 1

C. 14

B. 16

D. none of these

Answer: D

2244 is divisible by 17. So
Remainder is 16.

17. 222^222 divided by 7 ... what is the remainder?

A. 1

C. 3

B. 2

D. 4

Answer: A

$$\begin{aligned} \frac{222^{222}}{7} &= \frac{(224-2)^{222}}{7} = \frac{(-2)^{222}}{7} \\ &= \frac{(-1)^{222} \times 2^{222}}{7} = \frac{(2^3)^{74}}{7} = \frac{8^{74}}{7} = \frac{(7+1)^{74}}{7} \\ &= \frac{(1)^{74}}{7} = \frac{1}{7} \quad \text{So remainder is 1.} \end{aligned}$$

18. A clock is started at noon. By 10 minutes past 5, the hour hand has turned through:

A. 145°

C. 155°

B. 150°

D. 160°

Answer: C

Every hour, hour hand turns by 30°. In 5 hrs,
it will turn by $5 \times 30 = 150$

In 60 min, it turns by 30°.

In 10 min, it will turn by $30/6 = 5^\circ$

So, total angle = 155°.

19. If N is a natural no and N^3 has 16 factors then how many maximum factors can N^4 have??

A. 21

C. 26

B. 24

D. 25

Answer: D

If N^3 has 16 factors, then N will be of the form
 $N = a \times b$

where a & b are prime so take $N = 2 \times 3$, $N^3 = 2^3 \times 3^3$

Here N^3 has $(3+1) \times (3+1) = 16$ factors

$$\text{So, } N^4 = 2^4 \times 3^4$$

$$\text{Total factors} = (4+1)(4+1) = 25$$

20. The square of a two digit number is divided by half the number. After 36 are added to the quotient, this sum is then divided by 2. The digits of the resulting number are the same as those in the original number, but they are in reverse order. The ten's place of the original number is equal to twice the difference between its digits. What is the number?

A. 42

C. 46

B. 45

D. 43

Answer: C

Let the no. be $10a + b = P$

$$\text{Now, } \frac{P^2}{P/2} = \frac{2P^2}{P} = 2P$$

$$\frac{2P + 36}{2} = P + 18 = 10a + b + 18$$

$$\text{But } 10a + b + 18 = 10b + a$$

$$\Rightarrow 18 = 10b + a - 10a - b = 9(b - a) \Rightarrow b - a = 2$$

$$\text{As per question, } a = 2(b - a) = 2 \times 2 = 4$$

$$\therefore b = a + 2 = 4 + 2 = 6$$

The original no. is

$$P = 10a + b$$

$$= 40 + 6 = 46$$

21. Mr. Shah decided to walk down the escalator of a tube station. He found that if he walks down 26 steps, he requires 30 seconds to reach the bottom. However, if he steps down 34 stairs he would only require 18 seconds to get to the bottom. If the time is measured from the moment the top step begins to descend to the time he steps off the last step at the bottom, find out the height of the stair way in steps?

A. 45

C. 46

B. 43

D. 40

Answer:

Let say speed of the escalator is n steps/sec
 So, in 1st instance, $26 + 30n$ are the total steps in escalator.
 In 2nd instance, $34 + 18n$ are the total no. of steps.
 From here $26 + 30n = 34 + 18n \Rightarrow n = \frac{2}{3}$ steps/sec.
 Putting $n = \frac{2}{3}$ in any expression we get 46 as answer.

46 steps

22. In a certain year, the number of girls who graduated from City High School was twice the number of boys. If $\frac{3}{4}$ of the girls and $\frac{5}{6}$ of the boys went to college immediately after graduation, what fraction of the graduates that year went to college immediately after graduation?

A. $\frac{1}{9}$

C. $\frac{7}{9}$

B. $\frac{5}{9}$

D. $\frac{8}{9}$

Answer: C

Let's take simple assumptions for this
 Say no. of boys = 6 ($\therefore \frac{5}{6}$ of boys are there
 So no. of girls = 12 (18 students are there to graduates)

$$\frac{3}{4} \text{ of girls} = \frac{3}{4} \times 12 = 9$$

$$\frac{5}{6} \text{ of boys} = \frac{5}{6} \times 6 = 5$$

Fourteen students went to college

Fraction who went to college $\frac{14}{18} = \frac{7}{9}$

23. It was vacation time, and so I decided to visit my cousin's home. What a grand time we had! In the mornings, we both would go for a jog. The evenings were spent on the tennis court. Tiring as these activities were, we could manage only one per day, i.e., either we went for a jog or played tennis each day. There were days when we felt lazy and stayed home all day long. Now, there were 12 mornings when we did nothing, 18 evenings when we stayed at home, and a total of 14 days when we jogged or played tennis. For how many days did I stay at my cousin's place?

A. 22 days

C. 42 days

B. 32 days

D. 52 days

Answer: A

Say the vacation was of N Days
 Now 12 mornings they did nothing so $N - 12$ mornings \rightarrow Jog
 Also 18 evenings they did nothing, so $N - 18$ evenings \rightarrow Tennis
 $\therefore (N - 12) + (N - 18) = 14$
 Jogging Day $\boxed{N = 22 \text{ days}}$ Tennis Day

24. Boat A leaves shore P and Boat B leaves shore Q. (P and Q are opposite shores of a river.) A and B travel at constant speed. But the speeds are not same. Both boats meet at 600m from P for the first time. In their return journeys (i.e. after touching the shores), they meet again at 200m from Q. Find distance between P and Q.

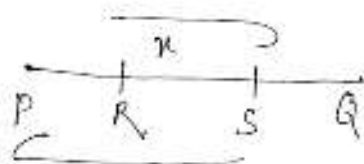
A. 1400

C. 1600

B. 1500

D. 1700

Answer: C



Let 1st meeting is at R
 & 2nd meeting at S

Ratio of speeds = Ratio of distance covered by boats
 $\frac{S_A}{S_B} = \frac{600}{600 + x}$ (for 1st meeting)

$$\text{Also } \frac{S_A}{S_B} = \frac{(x + 200) + 200}{(600) + (600 + x)} = \frac{x + 400}{1200 + x}$$

\Rightarrow From here we get $x = 800$

$$PQ = 800 + x = 1600$$

25. Difference between Bholu's and Molu's age is 2 years and the difference between Molu's and Kolu's age is 5 years. What is the maximum possible value of the sum of the difference in their ages, taken two at a time?

A. 10

C. 14

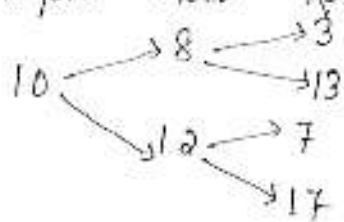
B. 11

D. 16

Answer: C

Let say Bholu is 10 years, so

Bholu Molu Kolu sum of differences (Taking 2 at a time should be maximum)



Bholu & Molu, diff = 2

Molu & Kolu, diff = 5

But Bholu & Kolu, Max^m diff.

Can be 7 (17 & 10), So Maximum sum = 2 + 5 + 7 = 14

26. THE SIMPLIFY VALUE OFF

$(1-1/3)(1-1/4)(1-1/5).....(1-1/99)(1-1/100)$?

A. 1/30

C. 1/50

B. 1/20

D. 1/60

Answer: C

$$= \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \dots \times \frac{98}{99} \times \frac{99}{100}$$

$$= \frac{2}{100} = \frac{1}{50}$$

27. A person with some money spends $1/3$ for cloths, $1/5$ of the remaining for food and $1/4$ of the remaining for travel. He is left with Rs 100/- How much did he have with him in the beginning?

A. 240/-

C. 260/-

B. 250/-

D. 270/-

Answer: B LCM (3, 4, 5) = 60, Say he has Rs 60/-

Clothes $\rightarrow \frac{1}{3} \times 60 = 20$, 40 left

Food $\rightarrow \frac{1}{5} \times 40 = 8$, 32 left

Travel $\rightarrow \frac{1}{4} \times 32 = 8$

So 24 is equivalent to 100/-

60 is equivalent = $100/24 \times 60 = 250/-$

28. A 31" x 31" square metal plate needs to be fixed by a carpenter on to a wooden board. The carpenter uses nails all along the edges of the square such that there are 32 nails on each side of the square. Each nail is at the same distance from the neighboring nails. How many nails does the carpenter use?

A. 120 nails

C. 124 nails

B. 121 nails

D. 15 nails

Answer: C

On two opposite sides 32 nails each $2 \times 32 = 64$
30 nails each as the corner nails have
already been counted in 64
 $\therefore 2 \times 30 = 60$

Total nails = $64 + 60 = 124$ nails

29. Glenn and Jason each have a collection of cricket balls. Glenn said that if Jason would give him 2 of his balls they would have an equal number; but, if Glenn would give Jason 2 of his balls, Jason would have 2 times as many balls as Glenn. How many balls does Jason have?

A. 14 balls

C. 28 balls

B. 15 balls

D. 19 balls

Answer: A

If Glenn has N balls then Jason has $N+4$.

Also, if Glenn gives 2 balls to J, then

$$G \rightarrow N-2, J = (N+4)+2 \\ = N+6$$

then $N+6 = 2(N+2)$ from here, $N=10$,

So J has $10+4=14$ balls

30. In a triangle ABC, the lengths of the sides AB and AC equal 17.5 cm and 9 cm respectively. Let D be a point on the line segment BC such that AD is perpendicular to BC. If AD = 3 cm, then what is the radius (in cm) of the circle circumscribing the triangle ABC?

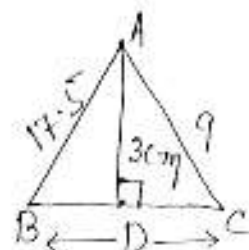
A. 17.05
B. 27.85
C. 22.45

D. 32.25

E. 26.25

Answer: E

Area of Δ when circum circle
 it's given $= \frac{abc}{4R} \Rightarrow R = \frac{abc}{4(\text{area})}$
 $\text{area} = \frac{1}{2} \times b \times h = \frac{1}{2} \times 3 \times b$
 $R = \frac{b \times 9 \times 17.5}{4 \times \frac{1}{2} \times b \times 3} = \boxed{26.25}$



31. Silu and Meenu were walking on the road. Silu said, "I weight 51 Kgs. How much do you weight?"

Meenu replied that she wouldn't reveal her weight directly as she is overweight. But she said, "I weight 29 Kg plus half of my weight". How much does Meenu weight??

A. 55 kg

C. 66 kg

B. 58 kg

D. 68 kg

Answer: B

$W_M = 29 + \frac{W_M}{2}$
 $\Rightarrow \boxed{W_M = 58 \text{ Kg}}$

32. Thirty days are in September, April, June and November. Some months are of thirty one days. A month is chosen at random. Then its probability of having exactly three days less than maximum of 31 is

A. 15/16

C. 3/48

B. 1

D. None of these

Answer: C

We have to consider a period of 4 yrs
 \therefore total no. of months = 48 (sample space)
 Out. of which 3 months have exactly 28 days.
 $\therefore \boxed{\text{Probability} = \frac{3}{48}}$

33. Ten years ago, the ages of the members of a joint family of eight people added up to 231 years. Three years later, one member died at the age of 60 years and a child was born during the same year. After another three years, one more member died, again at 60, and a child was born during the same year.

The current average age of this eight member joint family is nearest to:

- A. 23 years
B. 22 years
C. 21 years
D. 25 years
E. 24 years

Answer: E

Sum of 8 members age's, 10 yrs ago = 231

Sum of their age's, 3 yrs later = $231 + 8 \times 3 - 60 + 0 = 195$

After 3 yrs more sum of their ages = $195 + 8 \times 3 - 60 + 0 = 159$

Sum of their ages now = $159 + 8 \times 4 = 191$

So, present average = $191/8 = 23.875 \approx 24$ yrs

34. Two persons are climbing up on two moving escalators which have 120 steps. The ratio of 1st person's speed to that of 1st escalator is 2:3 (steps). The ratio of 2nd person's speed to that of 2nd escalator is 3:5 (steps). Find the total number of steps they both have taken together.

- A. 85
B. 93
C. 80
D. 75

Answer: B

1st Man: 1st escalator = 2:3

steps = $\frac{2}{5} \times 120 = 48$ steps

2nd Man: 2nd escalator = 3:5

steps = $\frac{3}{8} \times 120 = 45$ steps

Total steps by both = $48 + 45 = 93$

35. There are 4 parties A, B, C, D. Ram told that either A or B will win. Shyam told C will never win. Hair told either B or C or D will win. Only one of them was Correct. Which party won?

A. Party A

C. Party C

B. Party B

D. Party D

Answer: C

If A wins, R & S both are correct.

If D wins, S & H both are correct.

but when C wins, R & S are incorrect

but H is correct.

\therefore C wins the election.

36. Train 1 = 50kph from east and train 2 is 60kph from west. When both meet 1 has covered x km and 2 has x+120km. Find the distance between stations?

A. 1000 km

C. 1120 km

B. 1220 km

D. 1320 km

Answer: D

Train 2 has covered 120 km more than train 1.

So journey must have been 12 hrs.

Distance between stations could be
relative speed \times time

$$D = (50 + 60) \times 12 = \boxed{1320 \text{ km}}$$

37. $A = x^2y^2$

$B = xy^3$

find hef of A and B?

A. x^2y^2

C. x^2y

B. xy^2

D. none of these

Answer: B

HCF: Highest Common factor

Look for common factor in A & B which
has lowest power

$$\boxed{\text{HCF} = xy^2}$$

38. 3 dice are thrown. Find probability of sum=10?

A. $1/2$

C. $1/8$

B. $1/7$

D. $1/9$

Answer: C

$$\text{Sample space} = 6^3 = 216$$

No. of ways by which sum can be 10 is 27.

$$\text{So } P(10)_{\text{sum}} = \frac{27}{216} = \boxed{\frac{1}{8}}$$

39. An old man and young man start walking in 2 and 3 km/hr respectively. Old man start at 10 and young man at 10:05. What time will they meet?

A. 16:66

C. 12:66

B. 15:9

D. 20:3

Answer: A

$$\text{Old man} = 2 \times \frac{5}{18} = \frac{5}{9} \text{ m/sec}$$

$$\text{Young man} = 3 \times \frac{5}{18} = \frac{5}{6} \text{ m/sec}$$

$$\text{Relative speed} = \frac{5}{6} - \frac{5}{9} = \frac{5}{18} \text{ m/sec}$$

In 5 min or 300 sec old man will take lead by

$$300 \times \frac{5}{9} = \frac{500}{3} \text{ m.}$$

$$\text{Time taken by them to meet} = \frac{500/3}{5/18} = \frac{100}{6} = \frac{50}{3}$$

$$\text{or } \Rightarrow \boxed{10:05:16.66}$$

40. A can do a work in 15, B in 45 and C in 75 days. A do work in day 1, B in day 2, C in day 3, A in day 4, B in day 5, C in day 6 and so on. Finally they were paid 9000. Find B share?

A. 1893/-

C. 1920/-

B. 1787/-

D. 1797/-

Answer: C

$$\text{LCM of } (15, 45, 75) = 225$$

Let 225 unit of work is to be done.

$$\text{A's rate of completing work} = \frac{225}{15} = 15 \text{ units/day}$$

$$\text{B's rate} = \frac{225}{45} = 5 \text{ units/day}$$

$$\text{C's rate} = \frac{225}{75} = 3 \text{ units/day}$$

If nine complete cycle they do = $23 \times 9 = 207$ units of work.

On next day A goes 2 complete = $15/222$ units more.

\therefore B completes 3 units next day.

$$\therefore \text{Work by B} = 9 \times 5 + 3 = 48 \text{ units}$$

$$\text{B's share} = \frac{48}{225} \times 9000$$

$$= 1920/-$$