Maths Questions for CLAT Exam.

CLAT Maths Quiz 40

Directions: Read the following Questions carefully and choose the right answer:

1. $\frac{5+3\div(4-2)+2\ of\ 5+6\div4}{3\div2+3-2+2\times3\div6}$ **= ?**

A. $\frac{23}{7}$ B. $\frac{21}{27}$ C. $\frac{31}{7}$ D. $\frac{36}{7}$

2. The least number which when divided by 48, 64, 90 and 120 will leave the remainders 38, 54, 80, 110 respectively, is

A. 2870 B. 2860 C. 2890 D. 2880

3. The average age of 8 men got increased by 2 years when two of them whose ages are 21 years and 23 years are replaced by two new men. The average age of the two new men is.

A. 22 years B. 24 years C. 28 years D. 30 years

4. 5% of income of A is equal to 15% of income of B and 10% of income of B is equal to 20% of income of C. If the income of C is Rs. 2000, then the total income of A, B and C is

A. Rs. 20250 B. Rs. 25500 C. Rs. 18000 D. Rs. 17800

5. The difference between CI and SI compounded annually on a certain amount at 10% per annum for 2 years is Rs. 372. Find the principal

A. Rs. 37200 B. Rs. 38400 C. Rs. 35750 D. Rs. 38580

6. In an examination, a student gains 2 marks for correctly answering a question and loses 1 mark for wrongly answering a question. If in all, the attempts 210 questions and obtains 150 marks, then find the number of questions correctly answered by him.

A. 120 B. 150 C. 180 D. 110

7. Pipe A can fill a tank in 20 hours while pipe B alone can fill it in 30 hours while pipe C can empty the full tank in 40 hours. If all the pipes are opened together how much time will be needed to fill the tank if the tank is initially empty?

A. $15\frac{1}{5}$ hours B. $17\frac{1}{7}$ hours C. $17\frac{1}{5}$ hours D. $15\frac{1}{7}$ hours

8. Two buses take 12 hrs. to cover a distance of 120 km between A and B. A bus starts from point A at 8.00 a.m. and another bus starts from point B at 10.00 a.m. on the same day. When will the two buses meet?

A. 01 : 20 p.m. B. 02 : 15 p.m. C. 3 p.m. D. 04:05 p.m.

9. X has twice as much money as Y. Y has thrice as much money as Z. If X, Y and Z together have Rs. 1000, then what is the amount that X possess?

A. Rs. 400 B. Rs. 300 C. Rs. 100 D. Rs. 600

10. Find $x^4 + \frac{1}{x^4}$ if $x^2 + \frac{1}{x^2} = 10$.

A. 100 B. 50 C. 49 D. 98

Correct Answers:

1	2	3	4	5	6	7	8	9	10
D	A	D	C	A	A	B	C	D	D

Explanations:

1.

$$= \frac{5 + 3 \div 2 + 2 \text{ of } 5 + 6 \div 4}{3 \div 2 + 3 - 2 + 2 \times 3 \div 6}$$

$$= \frac{5 + 3 \div 2 + 10 + 6 \div 4}{3 \div 2 + 3 - 2 + 2 \times 3 \div 6}$$

$$= \frac{5 + \frac{3}{2} + 10 + \frac{3}{2}}{\frac{3}{2} + 3 - 2 + 2 \times \frac{1}{2}} = \frac{5 + 3 + 10}{\frac{3}{2} + 3 - 2 + 1} = \frac{18}{\frac{7}{2}}$$

$$= \frac{18 \times 2}{7} = \frac{36}{7}$$

Hence, option D is correct.

2. Divisor – Remainder = 10

48 – 38 = 10

64 – 54 = 10

90 – 80 = 10

120 – 10 = 110

LCM of 48, 64, 90, 120 = 2880

Least number = 2880 – 10 = 2870.

Hence, option A is correct.

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3. Let the original average age of 8 men be A and T be the sum of ages of 8 men.

$\Rightarrow A = \frac{T}{8}$.....(i)

and $A + 2 = \frac{T - 21 - 23 + x}{8}$ .....(ii)

where x is the sum of ages of two new men from (i) and (ii), we get

$\frac{T}{8} + 2 = \frac{T}{8} + \frac{x}{8} - \frac{44}{8}$

$\Rightarrow x = 60$

Average age of two new men $= \frac{x}{2} = \frac{60}{2} = 30$ years

Hence, option D is correct.

4.

$\frac{5}{100} A = \frac{15}{100} B$ and $\frac{10}{100} B = \frac{20}{100} C$

A = 3B and B = 2C = 2 × 2000 = Rs. 4000
A = 3 × 4000 = Rs. 12000
A + B + C = 12000 + 4000 + 2000 = Rs. 18000
Hence, option C is correct.

5. Let the principal be Rs. a.

$SI = a \times 10 \times \frac{2}{100} = \frac{20}{100} a$ and CI = Amount – a

$= a\left(1 + \frac{10}{100}\right)^2 - a = \frac{21}{100} \times a$

CI – SI = Rs. 372

$\Rightarrow \frac{21}{100} a - \frac{20}{100} a$ = Rs. 372 $\Rightarrow$ a = Rs. 37200

$\therefore$ Principal = Rs. 37200

Hence, option A is correct.

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6. The average marks obtained by the student

$= \frac{150}{210} = \frac{5}{7}$

Using alligation method :

Correct	Wrong
2	– 1
\ /	
$\frac{5}{7}$	
/ \	
$\frac{12}{7}$	$\frac{9}{7}$

(Note : 1 is being considered as negative as there is a penalty on attempting a question wrongly.)

So, the ratio of the correct attempts to wrong attempts is 4 : 3. Therefore, the number of questions correctly answered by him is

$\frac{4}{7} \times 210 = 120$

Hence, option A is correct.

7.

Net part filled in 1 hour $= \frac{1}{20} + \frac{1}{30} - \frac{1}{40} = \frac{7}{120}$

$\therefore$ The tank will be full in $\frac{120}{7}$ i.e. $17\frac{1}{7}$ hours

Hence, option B is correct.

8. Distance between A and B = 120 km

Speed of buses = $\frac{120}{12}$ = 10 km/hr

By 10.00 a.m. the bus from point A will cover 20 km. Hence, the distance between the buses at 10.00 a.m. = 120 – 20 = 100 km.

Relative speed of the buses = 20 km/hr.

Time take to meet = $\frac{100}{20}$ = 5 hr after B starts,

i.e. the buses will meet at 3 p.m.

Hence, option C is correct.

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9. Let Z has Rs. a. Y has Rs. 3a and X has 2 (3a) = Rs. 6a

Then, X + Y + Z = 1000

$\Rightarrow$ 6a + 3a + a = 1000

$\Rightarrow$ 10a = 1000 $\Rightarrow$ a = 100

$\therefore$ Amount with X = 6 × 100 = Rs. 600

Hence, option D is correct.

10.

$\left(x^2 + \frac{1}{x^2}\right)^2 = x^4 + \frac{1}{x^4} + 2$

$\Rightarrow (10)^2 = x^4 + \frac{1}{x^4} + 2$

$\Rightarrow 100 - 2 = x^4 + \frac{1}{x^4}$

$\Rightarrow x^4 + \frac{1}{x^4} = 98$

Hence, option D is correct.