05.09.2020 FN 11 – 1 SESSION

1. A can finish a job in 12 hours and B in 14 hours. A & B work alternatively, starting with A. If A earns Rs. 50 per hour. how much does A earn through this job?

A completes a work in 12 hrs

B Completes the same work in 14 hrs

Time ratio of A & B will be 6 : 7 corrct?

Eff ratio of A & B will be 7 : 6

A & B work alternatively

1st hr 🡪A 7

2nd hr 🡪B 6

3rd hr 🡪A 7

4th hr 🡪B 6

5th hr 🡪 A

LCM(12,14) =84 units is the total work

Work Done = Efficiency(Work done/hr) \* Time

Eff = Wrk Done / Time

Time =Wrk Done / Eff

Eff A = 84 / 12 = 7 units / hr

Eff B = 84 / 14 = 6 units / hr

1-7 units ; 2 – 6units; 3 – 7 units; 4 – 6 units

Work done in 2hrs =13 units

Work done in 12 hrs = 78 units.

Remaning wrk = 84 – 78 = 6 units

It is A’s turn he will have complete 6 units.

A’s efficiency is 7 units /hr and he will take 6/7th of an hr.

(A+B) will complete 84 units in 12 6/7 hrs

A 6 6/7 hrs \* 50 = 48 / 7 \* 50 = 342.80

B 6 hrs

Remaining work is 6 units.

It is A’s turn and his efficiency is 7 units /hr

(7+6)13 \* 6 =78 units

2. The number 456\*85 is completely divisible by 3, Smallest whole digit number in place of \* can be

a. 0 b. 1 c. 2 d. 3

456\*85 div by 3,

4 + 5 + 6 + 8 + 5 + \* = 28 + \* =28 + 2 = 30 mul of 3

3. Ram is five years elder to his youngest sibling Shreya. Shreya is two years younger than her brother Ritesh. Ritesh 13 years old and is Ram's brother, How old will Ram be in years from now?

Ram ‘s Present age is Ra

Shreya’s Present age is sh

Ritesh present age is Ri

Ram is elder to Shreya by 5 yrs

Ra = Sh + 5

Ra = 11 + 5 = 16 yrs

Two years from now ram will be 16 + 2 years of age. = 18 years

Shreya is younger to ritesh by 2 yrs.

Sh = Ri – 2.

Sh = 13 – 2 = 11

4.

The permutations and combinations of abcd taken 3 at a time are respectively:

abcd taken 3 at a time

4C3 = 4C1 = 4

4P3 = 4 \* 3 \* 2 = 24

5. The largest two digit number that divides 673 and 865, leaving remainder 1 in each,

Largest number that divides 673 & 865 leaving 1 as remainder.

Largest number that divides 673-1 & 865-1

Largest number that divides 672 & 864

HCF (672 & 864)

4(168,216)

4\*2(84,108)

4\*2\*4(21,27)

4\*2\*4\*3(7,9)

HCF = 96

6. What should be added to 1330 to make it a perfect square.

35\*35 = 1225

40\*40 = 1600

37 \* 37 = 1369

You should add 39 to 1330 to get 1369.

7. What is the probabitity of making an even number of 4 digits using 1,2, 3 and 4 without any digit being repeated;

Digits are 1 , 2 , 3 , 4.

Probability of even 4 digit nos.

Prob = Fav outcomes / Tot outcomes

= Outcomes which are even 4 digit numbers/ Outcomes which are 4 digit numbers

= 12 / 24

= 1 / 2.

1 , 2 , 3 ,4

\_\_4\_\_\_ x \_\_3\_\_\_\_ x \_\_\_2\_\_\_\_ x \_\_\_1\_\_\_\_ = 24 🡪Total

\_\_3\_\_\_ x \_\_2\_\_\_\_ x \_\_\_1\_\_\_\_ x \_\_\_2\_\_\_\_ = 12 🡪Even Outcomes

8 A rectangle's length is four times its breadth. It has an area of 2500 square yards. What is the length of the rectangle?

Area = L \* B

L = 4B 🡪 B= L / 4

Area = 2500 Sq Yards

2500 = L \* L / 4

10 000 = L2

L = 100

9. How many litres of a 90% solution of concentrated acid needs to be mixed with a 75% solution of concentrated acid to get a 30 L solution of 78% concentrated acid?

50 L of 35 % Alcohol ingradient 1

50 L of 50% Alcohol ingradient 2

100L of 42.5 % Alcochol Mixture

35 % 50 %

42.5

7. 5 7.5

1 : 1

How many litres of 90% concentrated H2SO4 has to be mixed with 75% concentrated H2SO4 ,

To get 30 litres 78% Concentrated mixture?

75% (1) 90%(2)

1-ingrad1, 2-ingrad2, 3-Mixture

78% (3) 30L

12 : 3

4 : 1

30 l as 5 parts 🡪 1 part = 6 l

75 % 🡪 4 parts = 24 L

90 % 🡪 1 part = 6 L

4 : 1 is the ratio in which we add ingradient 1 & ingradient 2

4x is the quantity of ingradient 1 🡪 4 \* 6 =24L

x is the quantity of ingradient 2 🡪 6L

4x + x = 30L

5x = 30

x=6.

Out of a total of 5 parts.4 parts belong to 75% Solution & 1 part belong to 90% solution

We know that Quantity of 78 % mixture is 30 l

Split 30 l in 4 : 1 ratio you will get

24 l of 75 % solution

6 l of 90 % solution.

10. Rahul can finish one-fifth of his homework in one hour, Neha can finish three-seventh of her homework in one hour thirty minutes and Riya can finish three fourth of her homework In three hours thirty minutes. If all of them start their homework at 12.00 p.m. and can go to play as soon as they all finish their homework, when can they start to play. if they take a break at 3.30 p.m. for thirty minutes?

Rahul 1 / 5th of his work in 1 hr = 5hrs total time

Neha 3 / 7th of her work in 1 1/2hrs

3/2 3 / 7

1 ? (2\*3 / 3 \* 7)

Neha 1 hr wrk is 2 / 7 or she will complete in 7 /2 = 3hrs 30 mins

Riya 3/ 4th of her work in 3 ½ hrs

7 / 2 3 / 4

1 ? (3\*2 /7 \* 4)

Riya 1 hr wrk is 3 /14 or she will complete in 14 / 3 hrs close to 3 hrs

They start at 12.00 pm ,they will go to play at 5.30pm