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SET 1: 2018001AM

1. George and Mark can paint 720 boxes in 20 days, Mark and Henry in 24 days, Henry and George in 15 days. George works for 4 days, Mark for 8 days and Henry for 8 days.The total no of boxes painted by them is?

a. 516 b. 492 c. 348 d. 252

2. An Aeroplane has four emergency exits. In an emergency it requires 8 seconds per passenger to evacuate the plane, if the hand baggage is not carried by the passenger. How long will it take to eliminate 53 passengers in an emergency?

a. None of the other 3 choices b. 1 min 52 secs

c. 1 min 44 secs d. 7 min 4 secs

3. In Loonyvilla, four people called Doctor, Engineer, Lawyer and Architect follow the professions of doctor, lawyer, engineer and architect. However none of them follow the profession indicated by their name.

Lawyer does not like the doctor's habit of constantly interrupting others. Architect is shy, and gives no public talks. Engineer has a dog. The architect has no pets. The lawyer lives in a big house.

Doctor plays golf regularly with the engineer every saturday, unless it rains. The lawyer gives a lot of public talks on hygiene.

What is the profession of Lawyer?

a. an engineer b. an architect

c. A doctor d. Cannot be determined

4. There is a set of 32 distinct points on a plane with the following characteristics. There is a subset a A consisting of 10 collinear points

Any subset of three or more collinear points from the 32 are a subset of A

How many distinct triangles with positive area can be formed with each of its vertices being one of the 32 points?(Two triangles are said to be distinct if atleast one of the vertices is different)

a. 1540 b. 3850 c. 4960 d. 4840

5. The length, breadth and height of a room is in the ratio 3:2:1. If the breadth and height are halved while the length is doubled then the total area of the four walls of the room will:

a. decrease by 30 % b. decrease by 18.75 %

c. decrease by 13.6% d. Decrease by 15%

6. What is the remainder when 2(8!)-21(6!) divides 14(7!)+14(13!)?

a. 9! b. 1 c. 8! d. 7!

7. According to the stock policy of a company, each employee in the technical division is given 15 shares of the company and each employee in the recruitment division is given 10 shares. Employees belonging to both communities to get 25 shares each. There are 20 employees in the company and each one belongs to at least one division. The cost of each share is $10. If the technical division has 15 employees and recruitment division has 10 employees then what is the total cost of the shares given by the company

a. 3180 b. 3120 c. 2650 d. 3250

8. Two cylinders are covered with papers on the curved surfaces. The top and the bottom regions of the cylinder is left exposed. If the length of the papers just covers the surface area of the cylinder (after cutting them if necessary), then what is the sum of the volumes of the two cylinders in cc? The height of the 1st cylinder and 2nd cylinder is 10 cm and 12 cm respectively. The area of the paper covering the first cylinder is 10 cm x 8 cm and the second is 10 cm X 4 cm. The answers are to be correct to two decimal points.

a. 61.54 b. 54.54 c. 65.43 d. 47.76

9. In an arithmetic progression there are 6 terms and their sum is 3. The first term is 4 times the third term. The fifth term in the progression is?

a. -3 b. 9 c. -4 d. -9

10. When 100 is to be successively divided by 6, 3, 4 first divide 100 by 6 then divide quotient 16 by 3, then divide the quotient by 4
A number when successively divided by 5, 3, and 2 gives reminders 0, 2, 1 respectively in that order. What will be the reminders when the same number is divided successively by 2, 3 and 5 in that order

a. 4, 1, 2 b. 1, 0, 4 c. 4, 3, 2 d. 2, 1, 3

11. How many 1's are present from 149 to 389?

a. 92 b. 93 c. 94 d. 95

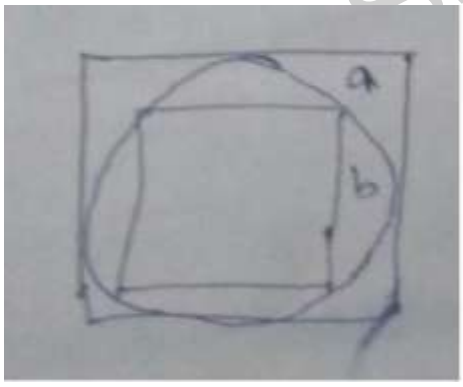
12. $F(x)= ax^4 + bx^2 + x + 5$, $F(-3)=2$ what is the value of $F(3)$?

a. 8 b. -8 c. 7 d. -7

13. There are 26 questions in a test. A student who takes up this test gets 8 marks for a right answer and -5 marks for an incorrect answer, finally he scored 0 marks. How many answers marked are correct?

a. 9 b. 11 c. 10 d. 12

14. Which area is larger a or b?



a. a b. b c. a & b are equal d. cannot be determined

15. A number divided by 50 leaves a reminder 16.The same number when divided by 80 leaves a reminder 'n'. Find no of possible no values for n?

a. 8 b. 9 c. 10 d. 11

16. In a family, there are four daughters Aasha, Eesha, Trisha and Usha. Each girl has exactly one necklace and one bracelet. Each of these eight ornaments was bout either in 2007 or 2008 or 2009.The eight ornaments was bought in a manner consistent with the following conditions:

A. The necklace for each girl was bought either in an earlier year than or in the same year as the bracelet for the girl

B. The necklace for Easha and the bracelet for Aasha were bought in the same year

C. The necklace for Trisha and the bracelet for Usha were bought in the same year

D. The necklace for Eesha and the Necklace for Trisha were bought in the different years

E. The necklace for Aasha and the bracelet for Trisha were bought in 2008.

If the necklace for Trisha was bought in an earlier year than the bracelet for Trisha was, then which one of the following statements could be true?

a. The necklace for Eesha was bought in 2007.

b. The necklace for usha was bought in 2008.

c. The necklace for Eesha was bought in 2008

d. The bracelet for usha was bought in 2008.

17. If A, B and C are three positive integers such that A is greater than B and B is greater than C, then which of the following is definitely true?

A. A% of B is greater than B% of C.

B. B% of A is greater than C% of B

C. C% of A is greater than B% of C

a. B & C only b. A only c. A, B and C d. A and B

18. A certain sum of money is sufficient to pay either George's wages for 15 days or Mark's wages for 10 days. For how long will it suffice if both George and Mark Work together?

a. 5 b. 9 c. 8 d. 6

19. Sixteen football teams play in a tournament. They are first divided into

four groups, each of four teams. In each group each team plays each other once. The best two teams from each group then play out in a knockout tournament (When a team loses a game it is eliminated) to decide the overall winner. How many matched must be played?

a. 16 b. 31 c. 15 d. 25

20. There are five boxes in a cargo. The weight of the first box is 200 kg and the weight of the second box is 20 % higher than the weight of the third box, whose weight is 25% higher than the weight of the first box. The fourth box which weighs 350 kg is 30% lighter than the fifth box. Find the difference in the average weight of the four heaviest boxes and four lightest boxes.

a. 75 kg b. 51.5 kg c. 65 kg d. 37.5 kg

SET 2: 2018002VI

1) A rectangle of height 100 squares and width 200 squares is drawn on a graph paper. It is colored square by square from top left corner and moving across in a spiral turning right whenever a side of the rectangle or a colored square is reached. Which square is colored last (give its row and column numbers – the bottom right square is on row 100 and column 200)

a) 51, 150 b) 51, 50 c) 50, 150 d) 50, 50

2) On a 26 question test, 5 points were deducted for each wrong answer and 8 points were added for right answers. If all the questions were answered, how many were correct if the score was zero.

a) 10 b) 11 c) 12 d) 13

3) Find the greatest number that will divide 148, 246 and 623 leaving remainders 4, 6 and 11 respectively.

a) 20 b) 12 c) 6 d) 48

4) Three persons sail in a ship which got drowned near an island and they are struck there. One of them is a Knight who speaks only truth, one is a spy who speaks either a truth or a lie and other one is the knave who speaks only lies. From

the following statements made by 3 people A, B and C comprising the knight, spy and knave though not necessarily in that order, identify the spy.

A ---> I am knight

B ---> A is not knave

C ---> if you had asked me, I would say A is the spy

a) A b) B c) C d) Cannot be determined

5) On door A – It leads to freedom

On door B – It leads to Ghost house

On door C – door B leads to Ghost house

The statement written on one of the doors is wrong.

Identify which door leads to freedom.

a) A b) B c) C d) none

6) University of Vikramasila has enrolled nine PhD candidates – Babu, Chitra, Dheeraj, Eesha, Farooq, Gowri, Hameed, Iqbal, Jacob.

• Farooq and Iqbal were enrolled on the same day as each other, and no one else was enrolled that day.

• Chitra and Gowri were enrolled on the same day as each other and no one else was enrolled that day.

• On each of the other days of hiring, exactly one candidate was enrolled.

• Eesha was enrolled before Babu.

• Hameed was enrolled before Dheeraj

• Dheeraj was enrolled after Iqbal but before Eesha

• Gowri was enrolled after both Jacob and Babu

• Babu was enrolled before Jacob

• Who were the last two candidates to be enrolled?

a) Gowri and Chithra

b) Babu and Chithra

c) Babu and Gowri

d) Eesha and Jacob

7) George can do some work in 8 hours. Paul can do the same work in 10 hours while Hari can do the same work in 12 hours. All the three of them start working at 9 am while George stops work at 11 am and the remaining two complete the work. Approximately at what time will the work be finished?

a) 11.30 am b) 1 pm c) 12.30 pm d) 12 noon

8) Two women Renu and Usha are working on an embroidery design. If Usha worked alone, she would need eight hours more to complete the design than if they both worked together. Now if Renu worked alone, it would need 4.5 hours more to complete the design than they both working together. What time would it take Renu alone to complete the design?
a) 10.5 hrs b) 12.5 hrs c) 14.5 hrs d) 18.5 hrs

9) A certain sum of money is sufficient to pay either George wages for 15 days or Mark wages for 10days .For how long will it be sufficient if both George and Mark work together?
a) 5 b) 7 c) 8 d) 9

10) Of a set of 30 numbers, average of first 10 numbers = average of last 20 numbers. Then the sum of the last 20 numbers is?
Options :
a) 2 X sum of last ten numbers
b) 2 X sum of first ten numbers
c) Sum of first ten numbers
d) Cannot be determined with given data

11) Babla alone can do a piece of work in 10 days. Ashu alone can do it in 15 days. The total wages for the work is Rs.5000. How much should be Babla be paid if they work together for an entire duration of work?
a) 2000 b) 4000 c) 5000 d) 3000

12) Apples cost L rupees per kilogram for the first 30 kilograms and Q rupees per kilogram for each additional kilogram. If the price paid for 33 kilograms of apples is Rs. 1167 and for 36 kilograms of apples is Rs. 1284, then the cost of the first 10 kgs of apples is:
a) Rs.117 b)Rs.1053 c)Rs.350 d)Rs.281

13) A number when successively divide by 5, 3,2 gives a remainder of 0, 2 and 1 respectively in that order. What will be the remainder when the same number is divided successively by 2, 3 and 5 in that order?
a) 4,3,2 b) 1,0,4 c) 2,1,3 d) 4,1,2

14) In a certain city, 60 percent of the registered voters are PARTY B supporters and the rest are PARTY A supporters. In an assembly election, if 75 percent of the registered PARTY B supporters and 20 percent of the V registered PARTY A supporters are expected to vote for Candidate A, what percent of the registered voters are expected to vote for Candidate A?

a) 53 b) 20 c) 60 d) 75

15) When (m +n) is divided by 12, remainder is 8. When (m-n) is divided by 12, remainder is 6. What is the remainder when (m*n) is divided by 6?

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

16) If f(x) =ax4-bx2-x+3 and f (3) =-2, find f (-3)=?

a) 2 b) 4 c) 6 d) 8

17) Tickets are numbered from 1, 2....1100 and one card is drawn randomly what is the probability of having 2 as a digit?

a) 290/1100 b) 291/1100 c) 292/1100 d) 390/1100

20) For which of the following n is the number 274 + 22058 + 22n a perfect square?

a) 2020 b) 2011 c) 2012 d) 2100

21) There is a set of 9 numbers that relate to each other in a certain way. Find the way the first set of boxes works. The numbers in the second set work in exactly the same way. Find the number that must

20	6	22
5	8	12
75	42	102
12	15	3
6		12
54	81	45

a) 16 b) 9 c) 12 d) -21

22) How many polynomial functions f of degree >= 1 satisfy f (x 2) = [f(x)]2 = f(f(x)) ?

a) More than 2 b) 2 c) 0 d) 1

23) Raj writes a number. He sees that the number of two digits exceeds four times the sum of its digits by 3. If the number is increased by 18, the result is the same as the number formed by reversing the digits. Find the number.
a) 35 b) 42 c) 49 d) 57

24) What will be the next term in the series 1, 7, 8, 49, 50, 56, 57, 343 .....?
a) 344 b) 350 c) 2401 d) cannot be determined

25) 10 people are there, they are shaking hands together, and how many handshakes are possible, if they are in no pair of cyclic sequence?
a) 45 b) 9 c) 12 d) 10

26) 60 men can complete a piece of work in 40 days. 60 men start the work but after every 5 days 5 people leave. In how many days will the work be completed?
a) 60 b) 80 c) 120 d) None of these

27) A person walks at 4km/hr for a particular duration T1 and 3km/hr for another duration T2 and covers a total distance of 36 km. If he walks at 4km/hr for the duration T2 and at 3km/hr for the duration T1, then he covers only 34 km. What will be the time taken by him to cover the one of the legs?
a) 4 hrs b) 7 hrs c) 10 hrs d) 6 hrs

28) If ABERSU are in sorted in alphabetical order, if 24 sorting are req for ABUSRE, 25 for AEBRSU, 49 for ARBESU, then how many sorting are required for AEUSRB?

a) 45 b) 48 c) 47 d) 46

29) After 6 years Raju's father's age will be twice that of the age and 2 years ago, his mothers age was twice that of Raju's age. What is the sum of Raju'sparents' age?
Options:
A) 4 less than four times Raju's age
B) 2 more than four times Raju's age
C) 4 more than four times Raju's age
D) 2 less than four times Raju's age

30) Length, Breadth and Height of a 3D figure is in the ratio 3:2:1. If the length is doubled and Breadth & Height are halved, then what is the % decrease in the volume of the solid?

a) Decreased by 15%

b) Decreased by 18%

c) Decreased by 30%

d) Decreased by 50%

31) 12 divides ab313ab (in decimal notation), where a, b are digits > 0, the smallest value of a + b is

a) 7 b) 6 c) 2 d) 4

32) In a telecom assembly factory, there are 250 men and 150 women. The average productivity of all workers is 12 units per day. The average productivity of a man is 15 units per day. What is the average productivity of a woman per day?

a) 6 b) 9 c) 7 d) 8

33) If a lemon and an apple together costs Rs. 12.00, a tomato and a lemon cost Rs.4.00 and an apple cost Rs 8.00 more than a tomato or a lemon, then which of the following can be the price of a lemon?

a) Rs .2 b) Rs .4 c) Rs.1 d) Rs .3

34) George, Paul and Hari start a business by contributing Rs. 30000/-, Rs. 40000/- and Rs. 50000/- respectively. After ½ a year George withdraws half his contribution. At the end of the year the business showed a profit of Rs. 90000 which was divided amongst the 3 men proportionate to the amount and duration of their investment in the enterprise. Paul got

a) Rs.25000 b) Rs.18000 c) Rs.32000 d) Rs.24000

35) A drinks machine offers three solutions Tea, Coffee or one of the two at random but the machine has been wired up wrongly so that each button does not give what it claims. If each drink costs Rs.50, what is the minimum amount of money that must be spent to determine with certainty thecorrect labeling of the buttons?

a) Rs.100 b) Rs.50 c) Rs.150 d) Cannot be determined

36) P, Q, R, S are distinct integers that can take values from 1 to 12. What is the possiblesmallest value for (P/Q) + (R/S)?
a) 1/12 + 2/11 b) 1/11 + 9/10 c) 1/11 + 2/12
d) 1/10 + 1/11

37) If ab64ab is divisible by 12, then the least possible value of a + b is?
a) 4 b) 5 c) 6 d) 7

38) There are 100 in a class and they attend a test.20 students are failed in both the subjects. 50students pass in subject A. 60 students passed in subject B. How many students passed in subject A only.
a) 20 b) 30 c) 15 d) 25

39) Find the odd man out: 2, 8, 20, 44, 83
a) 8 b) 20 c) 44 d) 83

40) Aravind can do a work in 24 days. Mani can dig the same well in 36 days. Aravind, Mani and Hari can do a work together in 8 days. Hari alone can do the work in
a)12 days b) 18days c) 16 days d) 24 days

41) Truck A and truck B move grain into a box at the rate of 20 kilos/ min and 13 1/3 kilos a minute respectively while Truck C removes grain from the box at the rate of 10 kilos/ min. If the capacity of the box is 2.4 tons, and Truck A, Truck B and Truck C are working simultaneously then the box will be filled in
a) 1 ½ hours b) 3/5 hours c) 1 5/7 hours d) 2 1/8 hours

42) If 5+3+2 = 151022, 9+2+4=183652, 8+6+3 = 482466 and 5+4+5 = 202541, then 7+2+5
a) 143547 b) 132234 c) 2577224 d)112321

43) Two full tanks, one shaped like a cylinder and the other like a cone, contain liquid fuel. The cylinder tank held 500 liters more than the conical tank. After 200 liters of fuel is pumped out from each tank the cylindrical tank now contains twice the amount of fuel in the conical tank. How many liters of fuel did the cylindrical tank have when it was full?

a) 1200 b) 1000 c) 700 d) 1100

44) Asha and Eesha – Eesha lies on Monday, Tuesday and Wednesday. Asha lies on Thursday, Friday and Saturday. Other days they will say the truth. Professor forgot and asked them what day it is. Both of them said yesterday I was lying and then professor got the day. What day it is?
a) Tuesday b) Thursday c) Friday d) Cannot be determined

45) Three sisters are identical triplets. The oldest by minutes is Asha, and Asha always tells anyone the truth. The next oldest is Eesha, and Eesha always will tell anyone a lie. Usha is the youngest of the three. She sometimes lies and sometimes tells the truth.
Victor, an old friend of the family's, came over one day and as usual he didn't know who was who, as he asked each of them one question. Victor asked the sister that was sitting on the left, "Which sister is in the middle **of** you three?" and the answer he received was, "Oh, that's Asha". Victor then asked the sister in the middle, "What is your name?" The response given was, "I'm Usha." Victor turned to the sister on the right, then asked, "Who is that in the middle?"The sister then replied, "She is Eesha". This confused Victor; he had asked the same question three times and received three different answers .Who was actually sitting in the middle?
a) Asha b) Eesha c) Usha d) Cannot be determined

SET 3: 2018002AM

1. A number when divided by 50 leaves remainder 16? What is that no?
2. Write numbers from sequence 149 to 387 like 14950.....387 . How many times does 1 occur in the series?
3. The simple subtraction problem Below , sum single digits (not necessarily distinct) are replace by letters , find the value of 7*A + 7*B +6*C*D

A 7 C 2
- 4 B 6 8
———————
5 4 3 D

a) 77 b) 95 c) 84 d) 70

4. Of a set of 30 numbers, average of first 10 numbers = average of last 20

numbers. Then the sum of the last 20 numbers is ?
(a)2 X sum of first ten numbers
(b)2 X sum of last ten numbers
(c)Sum of first ten numbers
(d)Cannot be determined with given data

5. When 147 is divided by N the remainder is 4
When 255 is divided by N the remainder is 8
When 622 is divided by N the remainder is 11
Find N?

6. Reflex angle for 9:40

7. A number divided by 5,3,2 leaves remainder 0,3,1. If the same number divided by 2,3,5 leaves remainder?

8. There are 720 boxes G and M can fill 20 boxes in one hour M and H canfill 24 boxes in one hour H and G canfill 15 boxes in one hour how much time it takes to fill 720 boxes by all the three people.

9. There is a set of 36 distinct points on a plane with the following characteristics:
* There is a subset A consisting of fourteen collinear points.
* Any subset of three or more collinear points from the 36 are a subset of A.
How many distinct triangles with positive area can be formed with each of its vertices being one of the 36 points? (Two triangles are said to be distinct if at least one of the vertices is different)

A 9083 B 4495 C 8215 D 9139

10. Consider the sequence of numbers 6,4,0,4,... where for n>2 the nth term of the sequence is the units digit of the sum of the previous two terms. Let Sn denote the sum of the first n terms of this sequence. What is the smallest value of n for which Sn>2273

A 576 B 571 C 570 D 569

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11. How many possible ways can write 3240 as a product of 3 positive integers a,b,c

450 420 350 320

12. How many 5's will be there in the number 121,122,123,... till 356 ?.

A 48

B 49

C 50

D 51

13. Find the length of the longest pole that can be placed in an indoor stadium 24 m long, 18 m wide and 16 m high

14. How many liters of a 90% of concentrated acid needs to be mixed with a 75% solution of concentrated acid to get a 30 liter solution of 78% concentrated acid?

a. 3

b. 4

c. 6

d. 10

15. In this question A^B means A raised to the power B. If f(x) = ax^4 - bx^2 + x + 5 and f(-3) = 2, then f(3) =

a. 1

b. -2

c. 3

d. 8

16. Of a set of 30 numbers, average of first 10 numbers = average of last 20 numbers. Then the sum of the last 20 numbers is?

a. Cannot be determined.

b. 2 x sum of last ten numbers

c. 2 x sum of first ten numbers

d. sum of first ten numbers

17. A play school has chocolates which can supply 50 students for 30 days. For the first ten days only 20 students were present. How many more students can be accommodated into the earlier group such that the entire chocolates get consumed in 30 days? Assume each student takes the same number of chocolates.

a. 45

b. 60

c. 55

d. 70

18. In the town of Uneven Ville, it is a tradition to have the size of the front wheels of every cart different from that of the rear wheels. They also have special units to measure cart wheels which is called uneve. The circumference of the front wheel of a cart is 133 uneves and that of the back wheel is 190 uneves. What is the distance travelled by the cart in uneves, when the front wheel has done nine more revolutions than the rear wheel?

a. 570

b. 1330

c. 3990

d. 399

19. There are 20 persons sitting in a circle. In that there are 18 men and 2 sisters. How many arrangements are possible in which the two sisters are always separated by a man?

a. 18!x2

b. 17!

c. 17x2!

d. 12

20. A number plate can be formed with two alphabets followed by two digits, with no repetition. Then how many possible combinations can we get?

a. 58500

b. 67600

c. 65000

d. 64320

21. A alone can do 1/4th of the work in 2 days. B alone can do 2/3th of the work in 4 days. If all the three work together, they can complete it in 3 days so what part of the work will be completed by C in 2 days?

a. 1/12

b. 1/8

c. 1/16

d. 1/20

22. How many prime numbers are there which are less than 100 and greater than 3 such that they are of the following forms?

a. 4x + 15y - 1

b. 11

c. 12

d. 7

e. None of the above

23. Babla alone can do a piece of work in 10 days. Ashu alone can do it in 15 days. The total wages for the work is Rs.5000. How much should be Babla be paid if they work together for an entire duration of work.

a. 2000

b. 4000

c. 5000

d. 3000

24. Population of a village is8000.if 6% men and 10% women are added,population becomes 8,600 then the number of men in the village was

25. The rupee or coin changing machine at a bank has a flaw. it gives 10 ten rupee notes if you put a 100 rupee note and 10 one rupee coins if you insert a 10 rupee note but gives 10 hundred rupee notes when you put a 1 rupee coin. Shivaji, after being ruined by his rivals in business is left with a one rupee coin and discovers the flaw in the machine by accident. By using the machine repeatedly, which of the following amounts is valid amount that Shivaji can have when he gets tired and stops at some stage (assume that the machine has an infinite supply of notes and coins)

1. A 26975
2. B 53947
3. C 18980
4. D 33966

26. In how many possible ways can write 3240 as a product of 3 positive integers a,b and c.

A 500 B 420 C 900 D 450

27. How many positive integers less than 500 can be formed using the numbers 1,2,3, and 5 for digits, each digit being used only once.

1. A 57
2. B 34
3. C 45
4. D 62

28. In this question A^B means A raised to the power of B Start with the integers from 1 to 10^2012. Replace each of them by the sum of its digits to get a string of 10^2012 numbers. Keep doing this until you get 10^2012 single digit numbers. Let m be the number of 1's and n be the number of 2's. Then m – n

29. Oranges can be packed in sets of 10 oranges in box type A or 25 oranges in box type B. A carton comprising of 1000 oranges of type a and b is packed. How many different combinations are possible in the number of type A and type B boxes while organizing the oranges

A 18 B 19 C 20 D 21

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

A 980 B 950 C 618 D 797

31. The perimeter of an equilateral triangle and regular hexagon are equal. Find out the ratio of their areas?

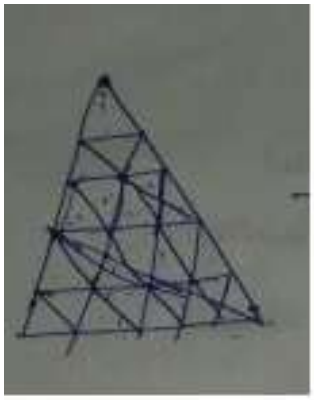
A 3:2 B 6:1 C 2:3 D 1:6

32. What is the remainder of (32^31^301) when it is divided by 9?

SET 4: 2018004SAR

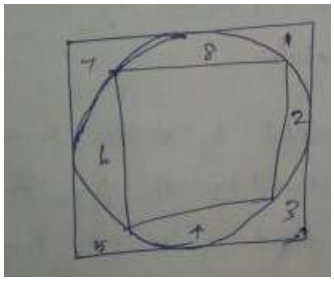
1) f(-3) = 2 , f(x) = ax4 – bx2 + 2x + 5 Find f(3)?

2)



In how many ways can we reach destination from source?

3) .



Which is greater

a. 1 b. 2 c. Cannot be determined d. none of the above

4) Star Question - The finance department of ABC consultants process the seven weekly invoices (1 to 7) payable to seven vendors which will be paid by Thursday of the same week as per these rules:

Ans 3,4,5,7

5) The sum of 55 consecutive integers a1,a2,a3,a4,.....a55 is 2750.What is the sum of their squares?

6) A passenger train takes 5 hrs less for a journey of 360 km. If its speed is

increased by 50 kmph from its normal speed. The normal speed is ?

a. 60 b. 50 c. 40 d. none of the above

7) George can do some work in x hrs. Paul can do the same work in 12 hrs. Henry can do it in y hrs. All 3 of them start working at 9AM. While George stops working at 11am and the remaining 2 complete the work. Approximately at what time will the work be complete?

8) Bablo alone can do a work in 10 days. Asha alone can do it in 15 days. The total waages for the work is 5000.What is bablo's wage?

9) The remainder when m+n is divided by 12 is 8 and the remainder when m-n is divided by 12 is 6. If m> n then what is the remainder when mn is divided by 6.

10) Apple cost Rs. L per Kg for first 30kg and Rs Q per Kg for each additional Kg. If the price paid for 33 Kg apple is 11.67 and for 36 Kg of apple is 12.48. Then the cost of first 10 kgs of apple is?

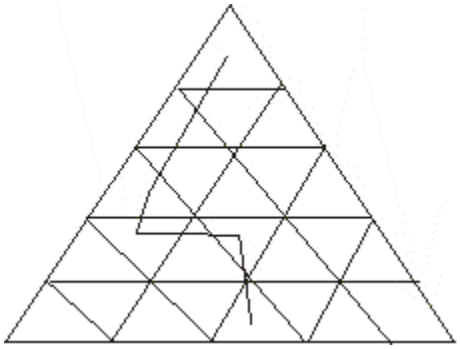
11) Roshan is proud of his swiss watch that he got as birthday gift fom his father. Roshan likes her brother and on one occasion she said
Ans 310

12) Find the length of the longest pole that can be placed in an indoor stadium 24 m long, 18 m wide and 16 m high

13) Find the length of the longest pole that can be placed in an indoor stadium 108m long, 15m wide and 16 m high

14) Figure shows an equilateral triangle of side of length 5 which is divided into several unit triangles. A valid path is a path from the triangle in the top row to the middle triangle in the bottom row such that the adjacent triangles

in our path share a common edge and the path never travels up (from a lower row to a higher row) or revisits a triangle. An example is given below. How many such valid paths are there?



a) 120 b) 16 c) 23 d) 24

15) Jain housing complex has a democratically elected governing council comprising of the president, secretary and the treasurer. During their annual meeting,they take up 3 different initiatives for discussion and voting, namely, painting of exteriors, 24 hour security, and additional water tank. They vote as below

• Each member of the council votes for at least one of the initiatives and against at least of the initiatives
• Exactly two members of the council votes for the painting initiatives
• Exactly one member of the council vote for the security initiatives
• Exactly one member of the council vote for the water tank initiatives
• The president votes for the painting initiative and votes against security initiative
• Security votes against painting initiative
• Treasurer votes against water tank initiative

Which one of the following statement could be true?

A. President and Secretary vote the same way on the water tank initiative
B. Secretary and Treasurer vote the same way on the painting initiative
C. Secretary and Treasurer vote the same way on the Security initiative
D. President votes for one of the initiatives and Secretary votes for two of the initiatives

SET 5: 2018005SR

1) Star Questions:

* Sudoku

Find 7x + 10y. (similar question given below) (13x + 13y)

Find 13x + 13y

8	1					7		3
	x		6		7			8
9		2	3	1		6		
	4			7		5	6	
		7	9	Y	1	2		
	6	3		4			9	
		4		9	2	1		6
6			5		4			
7		8					5	9

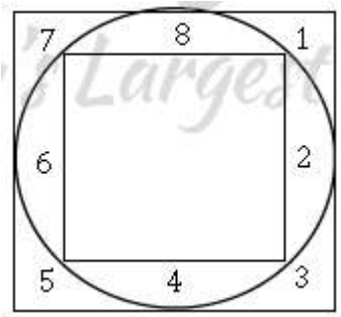
2) When n is divided by 50 Remainder is 16, when same number is divided by 80, how many remainders are possible.

3) When 147 is divided by N the Remainder is 4. 255 is divided by N the Remainder is 8. 622 is divided by N the Remainder is 11 find N?

4) George can do a job in 10 days. Jack can do a job in 15 days. How much each will get if the total wage in 5000 if they work together.

5) Write numbers from sequence 149 to 387 like 149150159.....? How many times does 1 occur?

6) Which is greater?



(a) 1 (b) 2 (c) Cannot be determine (d) None of the above

7) Two cylinders are covered with papers on the curved surfaces. The top and bottom regions of the cylinder are left exposed. If the length of the papers just covers the surface area of the cylinder (after cutting them if necessary). Then what is the sum of the volumes of the two cylinders in cc> The height of the 1st cylinder & 2nd cylinder is 10 cms and 12 cms respectively. The area of paper covering the first cylinder is 10 cm × 8 cm and the second is 10 cm × 4 cm. The answers are to be correct for 10 cm × 4 cm. The answers are to be correct for 2 decimal places.
(a) 61.54 (b) 54.54 (c) 65.43 (d) 47.76

8) President, Secretary, Treasurer is there. Painter, water, security each should atleast suppose one and atleast oppose one.

President □□Painter □□Security □

Secretary Water □

Treasurer Painter □

□□□□support

□□□□oppose

[

9) Cost of the apple for 1st 30 kg is 'L' Rs/kg. 'Q' Rs/kg for each additional kg. Price for 33 kg is given as Rs.1167 and 36 kg is Rs.1284. Then the cost of 1st 10 kg of apple is?
(a) Rs.117 (b) Rs.1053 (c) Rs.350 (d) Rs.281

10) Reflex angle when ____ is 9:40.

11) In this question AB means A raised to the power B. If f(x) = ax4 – bx2 + x + 5. F(–3) = 2. Then f(3) = ?
(a) 3 (b) – 2 (c) 8 (d) 1

12) 12. Of a set of 30 numbers, average of first 10 numbers = average of last 20 numbers. Then the sum of the last 20 numbers is?
(a) 2 X sum of last ten numbers.
(b) 2 X sum of first ten numbers.
(c) Sum of first ten numbers.

(d) Cannot be determined with given data.

13) The simple subtraction problem below, some single digits (not necessarily distinct) are replaced by letters, find the value of 7A + 7B + 6 CD.

A 7 C 2

– 4 B 6 8

_____

5 4 3 D

_____

(a) 77 (b) 95 (c) 84 (d) 70

14) Daniel can do some work in 12 hours, Roy can do the same work in 10 hours while Hillary can do the same work in 15 hours. All the three of them start working at 9 a.m. while Daniel stops working at 11 a.m. and remaining two complete the work. Approximately at what time will the work be finished?

(a) 130 p.m. (b) 12.30 a.m.

(c) 2.00 p.m. (d) 1.00 p.m.

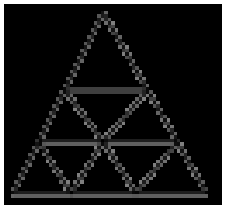
15) 15. George and Mark work for a company. George can finish a certain job in 30 days. Mark can finish the sample job in 45 days. A project was taken by the company and George was made superior to Mark. This move from the company was not liked by Mark. So Mark did not work for 15 days. Find the total number of days the entire work was competed if Mark works at his normal speed after 15 days from the date of commencement?

(a) 15 (b) 20 (c) 35 (d) 24

16) 16. George and Mark can paint 720 boxes in 20 days. Mark and Harry in 24 days and Harry and George in 15 days. George works for 4 days, Mark for 8 days and Harry for 8 days. The total number of boxes painted by them is

(a) 252 (b) 516 (c) 348 (d) 492

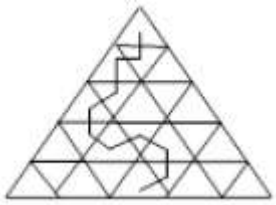
17) 17. The figure below shows a “size 3” equilateral triangle divided up into 9 “size 1” equilateral triangles. The figure has 6 upward facing and 3 downward facing “size 1”equilateral triangles, 3 upward facing and no downward facing “size 2” triangle. It has a total of 13 equilateral triangles of all sizes.



The following size 6 triangle is divided up in the same way. What is the sum of the number of up facing size 2 triangles and the number of upward facing size 4 triangles?

(a) 21 (b) 17 (c) 18 (d) 19

18) The figure shows an equilateral triangle of side length 6, which is divided into unit triangles. A valid path is a path from the triangle in the top row to the adjacent triangles in our path share a common edge and the path never travels up (from a lower row to a higher row) or revisits a triangle. An example of one such path is illustrated below. How many such valid paths are there?



(a) 120 (b) 16 (c) 23 (d) 24

19) If 50% of the 2:3 solution of milk and water is replaced with water. What is the concentration of the solution is required?

(a) 20% (b) 40% (c) 60% (d) 30%

20) 30L + 3Q = 1167

30L + 6Q = 1284

Find L.

(a) 30 (b) 35 (c) 40 (d) 45

21) In this question A^B means A raised to the power B. If f(x) = ax4 – bx2 + x + 5

F(–3) = 2

Then f(3) = ?

(a) 3 (b) – 2 (c) 8 (d) 1

22) In subtraction problem below, some single digits (not necessarily distinct) are replaced by letters. Find the value of 3 * A + 5 * B + 4 * C * D

A 4 C 2

– 3 B 4 8

_____

2 7 0 D

_____

(a) 95 (b) 133 (c) 124 (d) 150

23) Total income of 2012, 2013, 2014 is Rs.48412. Every year the salary increases by 20%. What was the salary in 2012?

(a) Rs.12,000 (b) Rs.13,300 (c) Rs.9800 (d) Rs.15,000

24) There are 5 boxes in a cargo hold. The weight of the first box is 300 kg and the weight of the second box is 40% higher than the weight of the third box, whose weight is 30% higher than the first box's weight. The fourth box at 400 kg is 50% lighter than the fifth box. Find the difference in the average weight of the four heaviest boxes and four lightest boxes.

(a) 90 (b) 125 (c) 77 (d) 116

25) In a country, 60% of the male citizens and 70% of the female citizens are eligible to vote. 70% of the male citizens eligible to vote voted, and 60% of female citizens eligible to voted. What fraction of the citizens voted during the election?

(a) 0.49 (b) 0.42 (c) 0.48 (d) 0.54

26) A travels at 40 kmph and B travels at 60 kmph. They are travelling towards each other and start at the same time. By the time they meet, B would have travelled 120 km more than A. Find the total distance.

(a) 600 km (b) 720 km (c) 400 km (d) 540 km

27) In the sample subtraction problem below, single digits are replaced by letters. Find the value of 2 * A + 4 * B + 7 * C *

D = ?

A 6 C 2

– 3 B 5 4

_____

4 9 3 D

_____

(a) 280 (b) 295 (c) 260 (d) 396

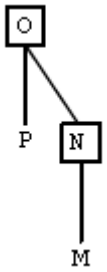
28) Perimeter of a equilateral triangle is equal to the perimeter of Hexagon. What is the ratio of their areas?
(a) 6:1 (b) 1:6 (c) 3:2 (d) 2:3
29) 60 men can complete a piece of work in 40 days. 60 men start the work but after every 5 days 5 people leave. In how many days will the work be completed?
(a) 60 (b) 80(c) 120 (d) None of these

30) A person walks at 4 km/hr for a particular duration T1 and 3 km/hr for another duration T2 and covers a total distance of 36 km. If he walks at 4 km/hr for the duration T2 and at 3 km/hr for the duration T1, then he covers only 34 km. What will be the time taken by him to cover the one of the legs?
(a) 4 hrs (b) 7 hrs (c) 10 hrs (d) 6 hrs

31) A city in the US has a basketball league with 3 basketball teams, the Aztecs, the Braves and the Celtics. A sports writer notices that the tallest player of the Aztecs is shorter than the shortest player of the Braves. The
shortest of the Celtics is shorter than the shortest of the Aztecs, while the tallest of the Braves is shorter than the tallest of the Celtics. The tallest of the braves is taller than the tallest of the Aztecs. Which of the following can be judged with certainty?
X) Paul, a Brave is taller than David, an Aztec
Y) David, a Celtic, is shorter than Edward, an Aztec
(a) X only (b) Both X and Y
(c) Neither X nor Y (d) Y only

32) Raju can do a piece of work in 10 days, Vicky in 12 days, Tinku in 15 days. They all started work together, but raju leaves after 2 days, Vicky leaves 3 days before the work is completed. In how many days work is compelted?
(a) 7 (b) 5 (c) 9 (d) 6

33) 33. M, N, O and P are all different individuals; M is the daughter of N; N is the son of O; O is the father of P; Among the following statements, which one is true?



(a) M is the daughter of P
(b) If B is the daughter of N, then M and B are sisters
(c) If C is the granddaughter of O, then C and M are sisters
(d) P and N are bothers

34) In a vessel, there are 10 litres of alcohol. An operation is defined as taking out five litres of what is present in the vessel and adding 10 litres of pure water to it. What is the ratio of alcohol to water after two operations?
(a) 1:5 (b) 2:3 (c) 1:6 (d) 3:2

35) A sum is sufficient to pay either George wage for 15 days or Marks wage for 10 days. How long will it suffice if both work together?
(a) 9 (b) 5 (c) 6 (d) 8

36) Apples cost Rs.L per kilogram for the first 30 kilograms and Rs.Q per kilogram for each additional kilogram. If the price paid for 33 kilograms of apples is Rs.11.67 and for 36 kilograms of apples is Rs.12.48, then the cost of first 10
kgs of apples.
(a) Rs.117 (b) Rs.1053 (c) Rs.350 (d) Rs.281

37) George walks 36 kms partly at a speed of 4 kms per hour and partly at 3 km per hour. If he had walked at a speed of 3 km per hour when he had walked at a 4 and 4 km per when he had walked at 3 he would have walked only 34 kms. The time (in hours) spent by George walking was
(a) 8 (b) 12 (c) 5 (d) 10

38) A number is divided by 406 leaves remainder 115. What will be the reminder when it will be divided by 29?

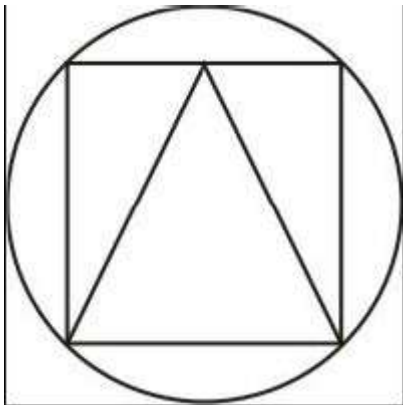
39) The remainder when m + n is divided by 12 is 8, and the remainder when m - n is divided by 12 is 6. If m > n, then what is the remainder when mn divided by 6?
(a) 3 (b) 4 (c) 2 (d) 1

40) Apples cost L rupees per kilogram for the first 30 kilograms and Q per kilogram for each additional kilogram. If the price paid for 33 kilograms of Apples is Rs.1167 and for 36 kilograms of apples if Rs.1284, then the cost of the first 10 kgs of apples is
(a) Rs.117 (b) Rs.350 (c) Rs.281 (d) Rs.1053

41) University of Vikramsila has enrolled nine PhD candidates. Babu, Chitra, Dheeraj, Eesha, Farooq, Gowri, Hameed, Iqbal, Jacob.
- Farooq and Iqbal were enrolled on the same day as each other, and no one else was enrolled that day.
- Chitra and gowri were enrolled on the same day as each other, and no one else was enrolled that day.
- On each of the other days of hiring, exactly one candidate was enrolled.
- Eesha was enrolled before Babu.
- Hameed was enrolled before Dheeraj
- Dheeraj was enrolled after Iqbal but before Eesha
- Gowri was enrolled after both Jacob and Babu
- Babu was enrolled before Jacob
Who were the last two candidates to be enrolled?
(a) Babu and Gowri (b) Eesha and Jacob
(c) Babu and Chitra (d) Gowri and Chitra

42) A bag contains 1100 tickets. Tickets are numbered from 1, 2 … 1100 and one card is drawn randomly what is the probability of having 2 as a digit?
(a) 190 (b) 200 (c) 250 (d) 400

43) Find the ratio of the area of square to area of triangle.



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

44) Find the greatest number that will divide 148, 246 and 623 leaving remainders 4, 6 and 11 respectively.
(a) 20 (b) 12 (c) 6 (d) 48

45) Babla alone can do a piece of work in 10 days. Ashu alone can do it 15 days. The total wages for the work is Rs.5000. How much should be Babla be paid if they work together for an entire duration of work?
(a) Rs.2000 (b) Rs.4000(c) Rs.5000 (d) Rs.3000

46) A number when successively divided by 5, 3, 2 gives remainder of 0, 2 and 1 respectively in that order. What will be the remainder when the same number is divided successively by 2, 3 and 5 in that order?
(a) 4, 3, 2 (b) 1, 0, 4 (c) 2, 1, 3 (d) 4, 1, 2

47) In a certain city, 60 percent of the registered voters are PARTY B supporters and the rest are PARTY A supporters. In an assembly election, if 75 percent of the registered PARTY B supporters and 20 percent of the registered PARTY A supporters are expected to vote for Candidate A, what percent of the registered voters are expected to vote for Candidate A?
(a) 53 (b) 20 (c) 60 (d) 75

48) Three sisters are identical triplets. The oldest by minutes is Asha, and Asha always tells anyone the truth. The next oldest is Eesha, and Eesha always will tell anyone a lie. Usha is the youngest of the three. She sometimes lies and sometimes tells the truth. Victor, an old friend of the family's came over one day and as usual

he didn't know who was who, as he asked each of them one question. Victor asked the sister that was sitting on the left, "Which sister is in the middle of you three?" and the answer he
received was, "Oh, that's Asha". Victor then asked the sister in the middle, "What is your name?" The response given was, "I'm Usha." Victor turned to the sister on the right, then asked, "Who is that in the middle?" The sister then replied, "She is Eesha". This confused Victor; he had asked the same question three times and received three different answers. Who was actually sitting in the middle?
(a) Asha (b) Eesha (c) Usha (d) Cannot be determined

SET 6: 2018006POO

1) ((m!)^2) + 23 is a perfect square, how many values cam 'm' take ?
   A. 0
   B. 15
   C. 1
   D. infinity

2) What is the sum of the all 5 digit number using 1, 2, 3, 7, 9 without repeating any of them?
   A. 5688860
   B. 5677708
   C. 5866680
   D. 5866608

3) According to the stock policy of a company each employee in the technical division is given 15 shares of the company and each employee in the recruitment division is given 10 shares employee belonging to both communities get 25 shares each there are 20 employees in the company and each one belong to at least one division the cost of each shares is 10$ if the technical division 15 employees and the recruitment division has 10 employees then what is the total cost of the shares given by the company?
   A. 3120
   B. 2650
   C. 3250
   D. 3180

4) The prime cost of an article was 3 times the value of materials used the cost of raw materials increases in the ratio of 3:7 and productive wages 4:9 find the present prime cost of an article which could formerly be made for Rs.18

A. 46

B. 41

C. 40

D. 30

5) 100<n<200; (n^2-n+2) is divisible by 8 and (n^2+2n-3) is divisible by 27 how many values can 'n' take?

A. infinity

B. 0

C. 1

D. none of the above

6) (75-a) (75-b)(75-c)(75-d)(75-e) =2299 find the value of a+b+c+d=?
if a,b,c,d and e are distinct integers

A. 330

B. 300

C. 390

D. 530

7) An ant smarty moves across a staircase taking the shortest distance calculate the distance it take to reach the top to b from a given that staircase consists of 2 steps it is also known that the length breath is 7 cm ,1cm,1cm respectively

A.2 root 16

B. root 65

C. root 7

D. 9

8) Tickets are numbered from 1, 2,....1100 and one card is drawn randomly what is the probability of having 2 as a digit?

A. 290/1100

B. 291/1100

C. 292/1100

D. 390/1100

9) If (x)=ax^4-bx^2-x+3 and f(3)=-2,find f(-3)=?

A. 2

B. 4

C. 6

D. 8

10) When (m+n) is divided by 12 remainder is 8 when (m-n) is divided by 12 remainder is 6 what is the remainder when (m*n) is divided by 6?

A. 1

B. 2

C. 0

D. 3

11) In a certain city 60 percent of the registered voters are party b supports and the rest are party a supports in an assembly election if 75 percent of the registered party b supports and 20 percent of the registered part a supports are expected to vote for candidate a. what percent of the registered voters are expected to vote for candidate a?

A. 53

B. 20

C. 60

D. 75

12) A number when successively divide by 5, 3, 2 gives remainder of 0, 2 and 1 respectively in that order what will be the remainder when the same number is divided successively by 2, 3, and 5 in that order ?

A. 4,3,2

B. 1,0,4

C. 2,1,3

D. 4,1,2

13) Apple cost L rupees per kilogram for the first 30 kg and Q Rs per Kg for each additional Kg if the price paid for 33 Kg of apples is Rs.1167 and for 36 kg of apples is Rs 1284, then the cost of the first 10 Kgs of apples is :

A. 117
B. 1053
C. 350
D. 281

14) Baba alone can do a piece of work in 10 days ashu alone can do it in 15 days the total wages for the work is Rs.5000 how much should be baba be paid if they work together for an entire duration of work?
A. 2000
B. 4000
C. 5000
D. 3000

15) Of a set of 30 numbers averages of first 10 numbers then the sum of the last 20 numbers is ?
A. 2 X sum of last ten numbers
B. 2 X sum of first ten numbers
C. sum of first ten numbers
D. cannot be determined with given data

16) A certain sum of money is sufficient to pay either george wages for 15 days or mark wages for 10 days for how long will it be sufficient if both George and mark work together
A. 5
B. 6
C. 8
D. 9

17) Two women renu and usha are working on an embroidery design if usha worked alone she would need eight hours more to complete the design than if they both worked together now if renu worked alone it would need 4.5 hrs more to complete the design than they both working together what time would it take renu alone to complete the design ?
A. 10.5 hrs
B. 12.5 hrs
C. 14.5 hrs

D. 18.5 hrs

18) George can do some work in 8 hrs paul can do the same work in 10 hrs while hari can do the same work in 12 hrs all three of them start working at 9 am while George stops work at 11 am and the remaining two complete the work approximately at what time will the work be finished ?

A. 11.30 am

B. 1 pm

C. 12.30 pm

D. 12 noon

19) George , paul and hari start a business by contributing Rs.30000, Rs.40000 & Rs. 50000 respectively after ½ a years George withdraws half his contribution at the end of the year the business showed a profit of Rs.90000 which divided amongst the 3 men proportionate to amount and duration of their investment in the enterprise. paul got

A. 25000

B. 18000

C. 32000

D. 24000

20) University of vikramasila has enrolled nine PhD candidate babu, chitra, dheeraj, eesha, farooq, gowri, hameed, iqbal, jacob

- farooq and iqbal were enrolled on the same day as each other and no one else was enrolled that day
- chitra and gowri were enrolled on the same day as each other and no one else was enrolled that day
- on each of the other days of hiring , exactly one candidate was enrolled
- eesha was enrolled before babu
- hameed was enrolls before deeraj
- deeraj was enrolled after iqbal but befoe eesha
- gowri was enrolled after both Jacob and bau
- babu was enrolled before Jacob
- who were the last two candidates to be enrolled?

  A. gowri and chitra

  B. babu and chitra

C. babu and gowri

D. eesha and Jacob

21) on door A – it leads to freedom
on door B – it leads to Ghost house
on door C – it leads to ghost house
the statement written on one of the doors is wrong
identify which door leads to freedom

A. A

B. B

C. C

D. none

22) Three persons sail in a ship which got drowned near an island and they are struck there one of them is knight who speaks only truth ,one is a spy who speaks either a truth or a lie and other one is the knave who speaks only lies from the following statements made by 3 people A, B and c comprising the knight, knave, and spy though not necessarily in that order identify the spy
A-→I am knight
B-→A is not knave
C-→if you had asked me, I would say A is the spy

A. A

B. B

C. C

D. cannot be determined

23) On a 26 question test, 5 points were deducted for each wrong answer and 8 points were added for right answer if all the questions were answered how many were correct if the score was zero

A. 10

B. 11

C. 12

D. 13

24) Find the greatest number that will divide 148, 246 and623 leaving remainders 4,6 and 11 respectively

A. 20

B. 12

C. 6

D. 48

25) A rectangle of height 100 squares and width 200 squares is drawn on a graph paper it is

Colored square by square from top left corner and moving across in a spiral turning right

Whenever a side of the rectangle or a colored square is reached which square is colored

Last (give its row and column numbers – the bottom right square is on row 100 and column 200)

A. 51,150

B. 51,50

C. 50,150

D. 50,50

SET 7: 2018007SRU

1) Three machines P,Q and R print 1 lakh books in 8,10 and 12 hrs respectively. All the machines started working together at 9.00 a.m. While machine P is closed at 11.00 a.m. And the remaining two machines complete the remaining work. Approximately at what time would the work be finished ?
   a) 11.30 a.m
   b) 01.00 p.m
   c) 12.30 p.m
   d) 12 .00 noon
2) From the deck of 52 cards, four cards are selected and one caed of it should be spade, another should be heart. In how many ways can the cards can be selected ?
3) The value of a scooter depreciates in such a way that its value at the end of each years is ¾ of its value at the beginning of the same year. If the initial value of the scooter is Rs.40,000. What is its value at the end of 3 years?
   a) 23125
   b) 17000

c) 13435

d) 16875

4) An old man and young man are working together in an office and staying together in a nearby apartment. The old man takes 30 mins and the young man takes 20 mins to walk from apartment to office. If one day the old man started at 10.00 AM and the young man at 10.05 AM from the apartment to office, When will they meet ?

a) 10.15

b) 10.30

5) (75-a)(75-b)(75-c)(75-d)(75-e)=2299
Then find a+b+c+d=?. If a,b,c,d and e are distinct integers.

a) 330

b) 300

c) 390

d) 530

6) $100<n<200$; (n^2-n+2) is divisible by 8 and (n^2+2n-3) is divisible by 27. How many values can 'n' take?

a) Infinitely many

b) 141

c) 40

d) 30

7) The total cost of articles was 3 times the value of materials used. The cost of raw materials increases in the ratio of 3:7 and productive wages 4:9. Find the present prime cost of an article, Which could formally be made for Rs. 18 ?

a) 46

b) 41

c) 40

d) 30

8) What is the sum that 15 digit number using 1,2,3,7,9 without repeating any of them ?

a) 5688860

b) 5977708

c) 5866680

d) 5866608

9) What is the sum of all 4 digit number using 2,3,7,9 without repeating any of them ?

10) $((m!)^2)+23$ is a perfect square, how many values can 'm' take ?

a) 0

b) 15

c) 1

d) Infinity

11) In this sequence 1,22,333,4444,11,2222,333333,44444444,111,222222..... what is 2170^{th} term?

12) What is the unit digit in the product $3^{65} * 6^{59} * 7^{71}$?

13) What is the last difit of $2^{1999} * 2^{2013}$?

a) 2

b) 4

c) 6

d) 8

14) There are two bags, one bag contains 5 white and 10 red balls. The other contains 10 white and 7 red balls. What is the probability taking a red ball from one of the bags ?

a) 55/102

b) 17/21

c) 15/17

d) 7/8

15) Two decks of cards are there. Each deck contains 20 cards, numbers from 1 to 20 written on them, A card is drawn of random from each deck, getting the numbers x and y. What is the probability that log x+log y is a positive integer. Logs are taken to the base of 10.

a) 3/200

b) 29/200

c) 7/400

d) 1/50

16) $4^{85} + 2^{3383} + 4^n$. What is the value of n to make it a perfect square ?

a) 85

b) 170

c) 3297

d) 3285

17) $(29)^{31\text{^}109}/9$. Find the remainder ?

a) 2

b) 9

c) 1

d) 8

18) $(3^{87} + 5^{87})/26$. Find the remainder ?

a) 22

b) 25

c) 1

d) 21

19) How many of the integers from 1 to 86(inclusive) contain the digit 4 or have the digit sum divisible by 4?

a) 40

b) 39

c) 24

d) 34

20) A bag has 110 tickets numbered from 1,2,3....,110. If a ticket is drawn out of it at random, what is the probability that the tickets drawn has the digit 2 appearing on it ?

a) 22/100

b) 20/110

c) 21/110

d) 31/110

21) A store is selling a jacket on sale at 31% off the marked price. A matching pair of pant sis on sale at 50% off the marked price. If the marked price of the pants is Rs.11600 less than the marked price of the jacket and the total sale price of both items is Rs.14600. Then what is the marked price of the jacket ?

a) 17000

b) 16700

c) 16900

d) 17100

22) A solid wooden toy is in the shape of a right circular cone mounted on a hemisphere, such that the circular base of the cone rests on the flat circular area of the hemisphere. The radius of the hemisphere is equal to the radius of the circular base of the cone. If the radius of the hemisphere 284.2 cm and the total height of the toy is 10.2 cm, find the value of the wooden toy(app to the nearest integer)

a) 266 cm^3

b) 104 cm^3

c) 102 cm^3

d) 4.27 cm^3

23) What is the GCD(largest number that will be divide the number with no remainder)

a) x=111111.....(27810 times)

b) x=111111.....(1750 times)

c) x=1111111111(10 times)

24) find the value of n? $16^{41} + 2^{7925} + 16^n$ a perfect square.

a) 3922

b) 3921

c) 3924

d) 3920

25) A box has 13 white clips, 7 blue clips and 6 green clips. What is the probability that, if 2 clips are drawn from the box in succession, one is blue and other is white ?

a) 8/30

b) 7/25

c) 7/50

d) 20/26

26) Five people need to travel in a 5 passengers as there are a driver's seat and a passenger seat in the front and three passenger seats in the back :a left seat, a middle seat, and a right seat. Two of the people are children and can sit only in the back. One of the three adults is busy reading a math book and refuses to drive. In how many ways can they be seated ?

a) 12

b) 24

c) 18

d) 36

27) A^B means A raised to the power 3. What is the remainder when 48^565 is divided by 7?

a) 1

b) 4

c) 6

d) 5

28) Let f be the function such that

f(f(x))=f(x+13) -18 for all integers x.

If f(241)=259 and f(259)=254, then f(267) is

a) 308

b) 290

c) 295

d) 272

29) The number when divided by 50 leaves a remainder 43. The same number when divided by 320 leaves a remainder n. How many values can n take ?

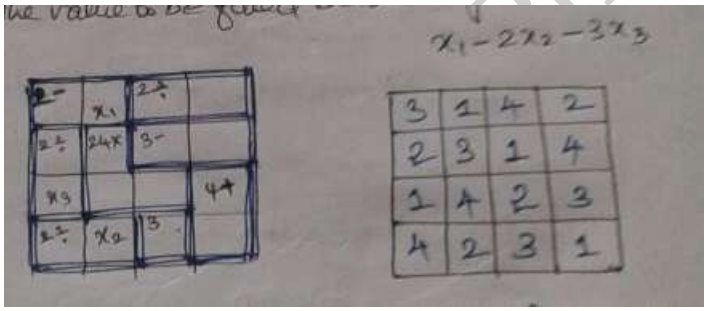
a) 64

b) 6

c) 10

d) 32

30) In the following keuken puzzle, each cell is to be filled with a digit between 1 and 4. On each row and coloumn, each digit(between 1 and 4) appears exactly once. Groups of heavily outlined adjacent cells are called cages. Clues are present in the top left corner of each cage in the form of result and optionally) a result using the specified mathematical operator is "+" or "*". If no mathematical operator is specified in a cage, the number at the top left corner of the cage is the value to be filled in the cage(the..... $x_1-2x_2-3x_3$



a) -22

b) -27

c) -29

d) -8

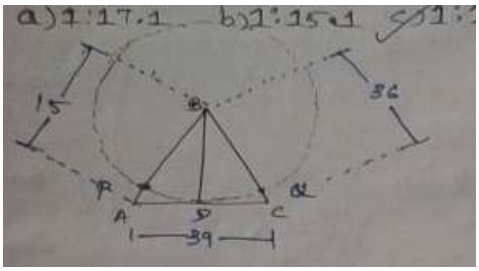
31) In the triangle AB= 15,AC=39. A perpendicular dropped from B meets the side AC at D. A circle of radius BD (with centre B) is drawn.. If the circle cuts AB & BC at P and Q respectively. Then AP : QC is equal to

a) 1 : 17.1

b) 1 : 15.1

c) 1 : 19.1

d) 1 : 18.1



32) Highest power of 91 that divides 78 ?

a) 4

b) 3

c) 6

d) 7

33) Drink more coffee is a coffee shop with a peculiar scheme. The shop keeps a weekly tally for each customers's first coffee cost Rs. 45. The second coffee Rs. 40.5 , Third costs Rs. 36 and so on. The cost goes by Rs.4.5 until he price reaches Rs.4.5. The remaining coffee that week are free for the customers

34) A petrol tank is already $(2/3)^{rd}$ filled. When 8 litre is added it is filled by $(5/6)^{th}$ of the tank. Find the tank capacity.

a) 30

b) 24

c) 48

d) 32

35) 2481 = (±1 ±2 ±3 .....±n). What is the minimum value of n ?

a) 65

b) 69

c) 70

d) 71

36) Two jars having a capacity of 3 and 5 litres are filled with milk and water. In the smaller jar 25% of mixture is milk. In the larger jar 25% of mixture is water. The jars are spilled into a 10 litres can, whose remaining capacity is filled up with water. Find the % of milk in the can.

37) If A,B,C are three integers such that A is greater than B and B is greater than C, then which of the following is definitely true?

I) A% of B is greater than B%C

II) B% of A is greater than C%B

III) C% of A is greater than B%C

a) I only

b) II only

38) Write the number from 149 to 387 in a sequence like 149,150,151,152,153.....386,387. How many 10 times the digit 1 occurs in the sequence.

39) A number when divided by 50 leaves a remainder 10. The same number when divided but 80 leaves a remainder n. How many values can n take ?

40) In a simple subtraction problem, below some single digits(not necessarily distinct) are respected by letters. Find the value of 6*A+5*B+A*C*D

A 1 C 5

1 B 6 7

----

6 5 6 D

41) The length, breadth and height of a room are in the ratio 3:2:1. If the breadth and height are halved which the length is doubled, then the total area of the walls of the room will;

42) Find the length of the longest pole that can be placed in a indoor stadium 24m long, 18m wide and 16m height?

43) Air conditioned bus from siruseri industry park runs of regular intervals throughout the day. It is now 3:09pm and the last bus arrived 1 min late ago but it was 2 min late

SET 8: 2018008PRI

1) Of a set f 30 numbers, average of first 10 numbers=average of last 20 numbers. Then the sum of the last 20 numbers is?

a. Cannot be determined with given data

b. Sum of first 10 numbers

c. 2xsum of last ten numbers

d. 2xsum of first ten numbers

2) In a single throw with two dice, find the probability that their sum is a multiple of either 3 or 4?

a. 1/3 b.1/2 c.17/36 d.5/9

3) The value of scooter depreciates in such way that the value at the end of each year is 7/8 of its value at the beginning of the same year. If the initial value of the scooter is Rs.59904, what is the value in Rs. at the end of 3years?
a.17, 472 b.40, 131 c.45, 864 d.26, 208

4) A shop sells chocolates.it used to sell chocolates for Rs.4.25each, but there were no sale at that price. When it reduces the price, all the chocolate were sold out enabling the shopkeeper to reduce Rs.393.82 from the chocolate alone. If the new price was not less then what is the price of the chocolate?
a.58 b.99 c.61 d.97

5) On a 26-question test, five points were deducted for each wrong answer and eight points were added for each correct answer. If all the question were answered, how many were correct if the score was zero?
a.10 b.11 c13 d.12

6) The shopkeeper charged 12 rupees for a bunch of chocolate. but i bargained to shopkeeper and got two extra ones, and that made them cost one rupee for dozen less then first asking price. How many chocolates I received in 12 rupees ?
a. 10 b. 16 c. 14 d. 18

SET 9: 2018009PRI

1) What is the minimum value of abs(187m-396n-526) as m and n take all integer values ?Here abs is the absolute value function (ie) if x>0, then abs(x)=x and if x<0 absolute of (x)= -x
a. 0 b. 9 c. 2 d. 1

2) What is the minimum value of abs Abs(286m-351n-617)
as m and n take all integer values ?Here abs is the absolute value function (ie) if x>0, then abs(x)=x and if x<0 absolute of (x)= -x

3) What is the minimum value of abs Abs Abs(578m-910n-541) as m and n take all integer values ?Here abs is the absolute value function (ie) if x>0, then abs(x)=x and if x<0 absolute of (x)= -x

4) ba +b+a=135
Bc+b+c=47
Ca + c+ a=101
what is the value of a+b+c
a. 30 b. 31 c. 28 d. 25

5) What is the minimum value of abs abs(779m-1045n-640)
as m and n take all integer values ?Here abs is the absolute value function (ie) if x>0, then abs(x)=x and if x<0 absolute of (x)= -x

6) ab+b+a=135
Bc+b+c=322
Ca+a+c=151
A+b+c=?

7) Two women usha and has. If first women worked above. She would need eight hours more to complete the design than if they both worked together. Now if has worked alone, it would need 4.5 hours move to complete the design than they both working together. What time would it take haas done to complete the design.

8) There is a set of 36 distinct points on a plane with the following characters
There is a subset of A consisting of 14 collinear points
Any subset of 3 or more collinear points from the are a subset of A
How many distinct D will positive area can be formed with each other of its vertices being one of the 36 points? (the triangle are said to be distinct if at least one of vertices is different.
a)7140 b) 47774 c)1540 d)6776

9) In a potato race, 20 potatoes are placed in a line of intervals of 4 meters with first potato 24 meters from the starting point. A Contestant is required to bring potatoes back to the starting place one at a time. How far would he run in bringing back all the potatoes.

a) 2400 b) 1440 c) 2480 d) 1240

10) X takes to 4 days to complete 1/3 of job. Y takes 3 days to complete 1/6th of the same work & Z takes 5 days to complete the half of the job. If all them work together for 3 days, X and Z quit. How long will it takes for Y to complete the remaining work alone?

a) 8.6 days b) 5.1 days c) 4.5 days d) 7.5 days

11) A sum of Rs.20706 is distributed amongst A, B, C. A gets 10/123 of what B & C got together and C gets 1/10 of what A&B got together. C's share is (approx)?

a) 1782.3 b) 1885.0 c) 1882.4 d) 1456.8

12) abc = 9000, (a,b) (b,c)(c,a) are pairs of co prime numbers. Find a+b+c=?

a) 142 b) 1009 c) 119 d) none of this

2^3*5^3*3^3 =8*125*9

=(8,125) 125+17 =142

Ans: 142

13) There are 3 cities A, B & C. Two ways to reach C from A or B shortest distance from A to B is 66km. shortest distance from B to C is 45 km. shortest distance A to C is 50 km. There is another city called P. Shortest distance, from P to A is 180 km. shortest distance from P to B is 200 km. Find the shortest distance between P to C.

a) 230 b) 245 c) 291 d) 430

14) 60% of the company are men.Remaining are women. If 25% the men are the given a salary of more than 3 lakh and if 25% of the company employees are given a salary of more than what fraction of women are getting 3 lakh are lesser?

a)1/10 b)3/10 14) 60 c)1/15 d)2/3

15) Six years ago raj father's age is 6 times the age of Raj. The different present age is 35. What is the sum of their present ages?

16) Anand packs 304 marbles into packets of 9 or 30 that no marbles is left. Anand wants to maximize the number of bags with a marbles. How many bags does he need if there should be at least one bag with 11 marbles

a) 36 b) 8 c)24 d)32

17) 2 o'e with enter P and R cut each others at 2 distinct point A and B . The o'es have the same radii and neither P nor Q fails within the interaction of the o'es. What is the smallest orange that includes all possible values of the 1'e AOP in degree ?

a) between 0 and 90 b)between o and 75 c) between 0 and 30 d)between 0 and 45 e) between 0 and 60

18)1,2,3 and 4 can form 256 difference 4 digit numbers. If digit repeated two of them are 1111 and 1113. The find the sum of 256 numbers

a) 711040 b)711000 c)711038 d) 711042

20) Find Remainder (34^31^301) is divided by 9

21) when two dice are rolled , find the probability of getting a multiple of 3 and 5as a sum .

22) Solve f(n)=ax+b,f(f(f(r)))=8x+21. Find a+b

23) 10 person can stand in a conical tent. each person needs $10m^2$ to stand and $60m^3$ air to breathe. What is the height of the tent

a)18 b)12 c) 36 d) 9

24) There are certain number of themes of each theme will play with every other team .If 45 matches were held . how many teams were there.

25) How many palindromes are the between 4000and 83000?

a)800 b)790 c)890 d)780

26) How many 6 digit even no's can be formed from the digits 1-7. So that the digits should not repeat. And second last digit must also be even.

27) Two sides of plot measure 32m, 24m,angle b/w them=90◦ other 2 sides are 25m,25m and other 3 angles are not right angles. If the plot is convex.Find the area of plot.

a)768 b)534 c)696.5 d)684

28) A tank has 144 liters of sprit , 1st60 liters is taken out and replaced with 60liters of water for all and countinue3.What Quantity of sprit in tank after 3 days.

30) The avg temperature on tues,wed,thrus,fri is 466◦c on Friday,temp is 439◦c.What was the temp on tues?

31) Incomes are in the ratio =5:4

Expenses in ratio =14:11

savings of both of them=Rs 10000

Find A's income.

32) Current age of 2 person=25

9yrs before elder one was 6 times than younger. Find the current ages.

33. Two deck of cards each deck contains 20 cards with nos 1-20. A card is drawn at random from each deck getting the nos x & y respectively. When is the probability that LOGX+LOG Y IS A +VE INTEGER?

34. What is the power of n 4^85+2^3383+4^n

35. 3^87 +5^87/26. Find the remainder.

37. In the medical times, the sheikdom A1 kurazi had a proud tradition of inventing their own measurement units. The unit for distance was du and the unit time was pu. Unfortunately exactly what these measurement units are in modern terminology has been lost. The skelth of A1 kurazi had built a huge mansion in the desert with a circular wall around it and the wall had 4 gates pointing north gate,one 135 du to the towers east of the south gate,one 7 ½ du to the east of east gate.They had been alignes to be all in straight line passing through the oasis. What was the diameter of the wall that surrounded by the ity?(in du)?

a) 178 b)183 c)180 d)181

38. The value of the scooter depreciates in such a way that its value at the end of each year is ¾ of its value at the beginning of the same year.If the initial value of the scooter is Rs.39936. What is its value in Rs. At the end of the years.

39. How many of the integers from 1 to 86 contain the digit 4 or have the digit sum divisible by 4?

40. A bag contains 110 tickets numbered 1,2,3.. 110. If a ticket is drawn out of it ar random, what is the prob of that the ticket drawn has the digit 2 appearing on it.
a) 22/110 b)20/110 c)21/110 d0 31/11

41. A store is selling a jacket on sale 30% off the market price. A machine pair of pants is on sale at 50% of the marked price of the marked price. If the m.p of the pants is 11600 RS less than the marked price of the jacket and the total sale price of the both items is RS 14600 & then what is the marked price of the jacket?
a)17000 b)16700 c)16900 d)17100

42. A solid wodden toy is in the shape of a right circular cone mounted on a hemisphere,such that the ovular base of the cone rests on the flat circular area of hemisphere. The radius of the hemisphere is equal to the radius of the circular base of the cone. If the radius of hemisphere is 4.2 cm & the total height of the toy is 10.2 cm, find the volume of the wodden toy.
a) 266cm^2 b)104 cm^3 c)162 cm^3 d)424 cm^3

43. For which of the following values of n is the number 16^41 + 2^7925+16^n is a perfect square ?

44. 5 people need to travel in a 5 passenger car .there is a driver seat and a passenger seat in the front and 3 passengers seat in the back, a left seat , a middle seat and te right seat.Two of the people are children and can sit only at the back .one of the 3 badults is busy reading a math book and refuse to drive .in how m,any ways can they get seated?

a.12 b.24 c.18 d.6

45. in this question A^B means A raised to the power B . what is the remainder when 48^565 is divided by 7?

46. Let f be a function such thatf(f(x)) *=f(x+13)-18 for all integers x. if f(241)=259 and f(259)=254 then (290) is ?

a.308 b.290 c.295 d.272

47. A person standing inside a rectangle form ABCD and measures his distance from 3 of the corners as PA=10,PB=3,PC=6 what is his distance in meter from the other corner D ?

a. 7 b.13 c.sqrt (127) d.sqrt(109)

48. In the triangle AB=15 , AC=39,BC=36.A Lr dropped from B melts the side AC at D . A circle of radius bd(with center B) is drawn . if the circle cuts AB and BC at P and Q respectively the AP : QC is equal to ?

a.1:7:1 b.1:15:1 c.1:99:1 d.1:18:1

49. What is the highest power of 91 that divides 781 ?

a. 4 b.3 c. 6 d.13

50. (75-a)(75-b)(75-c)(75-d)(75-e)(75-f)=2299 find the value of a+b+c+d if (a,b,c,d,and e) are distinct integers

a.330 b.300 c.390 d.530

51. The number of integer n with 100<n<200 such that : (n^2-n-2) is divisible by 8 and (n^2+2n-3) is divisible by 27 is ?

a. 4 b. 1 c. 3 d.2

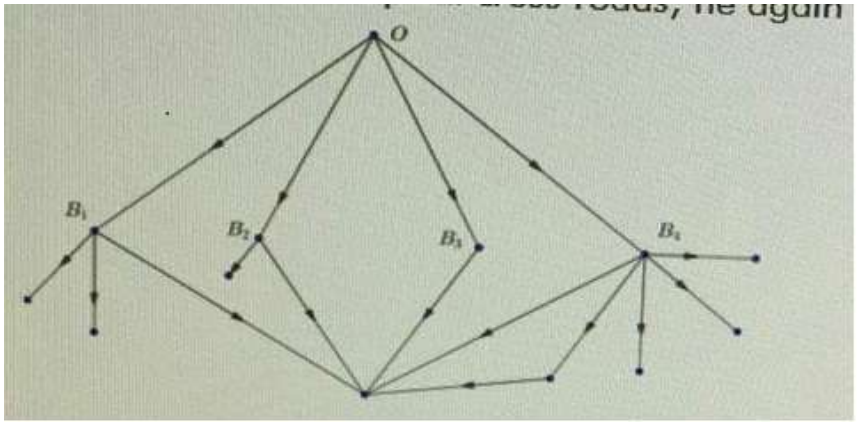
SET 10: 2018010SRM

1. A tiger sees a deer. It estimates that the deer is 30 leaps away. The Deer sees the Tiger and starts running , with the tiger starting its chasing instantaneously. If in every minute , the Tiger makes 5 leaps and the Deer makes 6 leaps and one leap of the Tiger is equal to two leaps of the Deer. Find the time in which the Deer is caught by the Tiger?

   a. 12 minutes b. 14 minutes c. 7.5 minutes d. 15 minutes

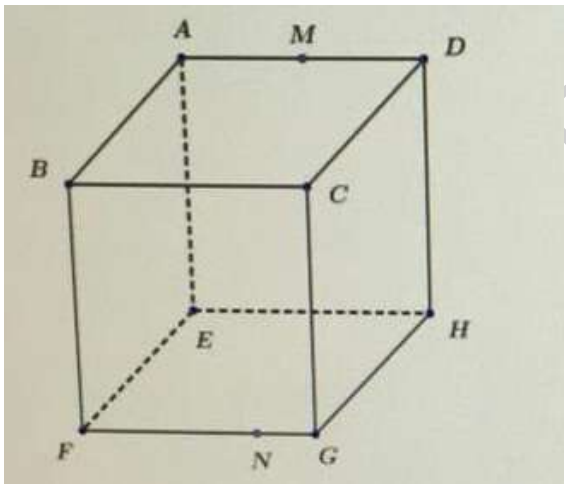
2. A Hiker leaves the point O shown in the figure choosing one of the roads OB1,OB2,OB3,OB4 at random. At each subsequent cross roads, he again chooses a road at random.What is the probability that he reaches point A?

   a. 11/120 b. 67/120 c. 11/15 d. ¼



3. ABCDEFGH is a cube of side 12 metres. On the midpoint M of the edge AD there is an ant.It wants to reach a food particle at the point N located 3 metres away from G on the edge FG. What is the shortest distance that this ant can travel to arrive at N?

   a. 2 sqrt 137 b. sqrt 585 c. sqrt 549 d. 2 sqrt 146



4. Raj travels a part of his journey by taxi paying Rs 15 per Km and the rest by train paying Rs 21 per km. If he travels a total of 450 km and pays Rs. 8130 , the distance travelled by rail is?

   a. 230 km b. 260km c. 180km d. 190km

5. In a chess competition involving some boys and girls of a school, every student had to play exactly one game with every other student. It was found that in 45 games both the players were girls , and in 190 games both were boys. The number of games in which one playes was a boy and the other was a girl is?

   a. 256 b. 216 c. 232 d. 200

6. Out of a group of students , 49/5 times the square root of the total numbers are playing cricket. Remaining two are idle. Find the total number of students?
   a. 100 b. 81 c. 144 d. 121

7. A fence has to be made. Posts are to be for every 6m intervals. They are at starting and ending point. Person brings some posts and there 7 posts lacking .If they are 9m interval the posts are sufficient. How many posts did the persons bring?
   a. 13 b. 14 c. 15 d. 16

8. There are 60 pebbles and 2 persons A and B.A takes 1 pebble B takes 2 pebble again A takes 3 pebbles and B takes 4 pebbles and it goes on alternatively . Who takes the maximum number of pebbles?
   a. A b. B c. Equal number of pebbles d. cannot be determined

9. Sum of the 66 consecutive integers is 5181, then sum of the squares is?

SET 11: 2018011SKI

1) The prime factorization of integer N is A x A x B x C x D x D, where A, B ,C and D are all distinct prime integers. How many factors does N have?
36
48
24
30
Ans: 36
N = A^2 * B * C * D^2
Hence number of factors = 3*2*2*3 = 36

2) Find the 87th term in the series 2, 10, 26, 50, ...
1986
2682
3741
4120
Ans: 3741
2+8=10 = 1*8 + 2
10+2*8 = 26 = 3*8 + 2
26+3*8 = 50 = 6*8 + 2
50+4*8 = 82 = 10*8 + 2
82+5*8 = 122 = 15*8 + 2

We can see the term is following a pattern of triangular number * 8 + 2
Hence 87th term is actually where N=86, 86*87/2 = 3741

3) Find the area (in square units) of the triangle formed by the lines represented by the equations 2x+3y=5, y=x and X-Axis.
5/4 sq.units
7/4 sq.units
5/2 sq.units
7/2 sq.units
Ans: 5/4 sq.units
Substitute y=0 to know point of intersection on X-Axis.
So x=5/2 and x=0.
To know the points of intersection of the other two lines, 2x+3y=5, y=x
2x+3x=5, x=1,y=1
Hence the vertices of the triangle are (0,0) (1,1) (5/2,0)
The area of the triangle = Sum of area of the two right angles triangles = 1/2 * (1*1) + 1/2 * (1.5*1)
= 1/2*(2.5) = 2.5/2 = 5/4

4) What is the remainder when 30^72^87 divided by 11?
0
1
3
5
Ans: 5
30 and 11 are coprime.
Euler's totient of 11 is 10.
Hence 30^10 mod 11 = 1.
So 30^72^87 mod 11 = 30^2^87 mod 11 = 900^87 mod 11
Now 900 mod 11 = 9
900^87 mod 11 = 9^87 mod 11.
As 9 and 11 are again coprime 9^10 mod 11 = 1.
So 9^87 mod 11 = 9^7 mod 11 = (-2)^7 mod 11 = (-128) mod 11 = -6 which is 5

5) The last digit of the expression 4 + 92 + 43 + 94 + 45 + 96 + ... + 499 + 9100?
1
3
5
7
Ans: 3
First series = 92+94+ ... + 9100.
Number of terms N = (9100-92)/2 + 1 = 4505
Sum = 4505/2 * (92+9100) and hence last digit is 0.
Second series = 43+45+...499
Number of terms N = (499-43)/2 + 1 = 229
Sum = 229/2 * (43+499) = 229*271 and hence last digit is 9
So overall unit digit = unit digit of (4+0+9=13) = 3

6) You have been given a physical balance and 7 weights of 52, 50, 48, 44, 45, 46, and 78 Kgs. Keeping weights on one pan and object on the other, what is the maximum you can weigh less than 183 Kgs?
178
180
181
182
Ans: 180
Let us solve it by using options.
182 - No valid combination
181 - No valid combination
180 - we have 52+50+78

7) If X^y denotes x raised to the power y, then find last two digit of 1507^3381 + 1457^3757
11
64
48
None of these
Ans: 64
The trick is to make unit digit be 1 and then apply the shortcut.
1507^3381 = 1507^(4*845 + 1)
1457^3757 = 1457^(4*939 + 1)
1507^4 will have last two digits as 01.
1457^4 will have last two digits as 01.
Last two digits for xxx01^845 = 01 (Using the shortcut to find the last two digits of powers for numbers ending with 1)
So the required last two digits is last two digits of the sum (01*07 + 01*57) = 64

8) 12 people {a1, a2, ..., a12} meet and shake hands in a circular fashion. In other words, there are totally 12 handshakes involving the pairs, {a1, a2}, {a2, a3}, ..., {a11, a12}, {a12, a1}. Then size of the smallest set of people such that the rest have shaken hands with at least one person in the set is
4
12
3
6
Ans: 4
a2 shakes hands with a1 and a3
a5 shakes hands with a4 and a6
a8 shakes hands with a7 and a9
a11 shakes hands with a10 and a12
So the size of the smallest set such that the rest of the people (who are not in the set) have shaken hands at least once = size of {a2,a5,a8,a11} = 4
Shortcut to remember: In general, for circular fashion, formula = N/3 = 12/3 = 4

9) If f(x) = sum of all the digits of x, where x is a natural number, then what is the value of f(101)+f(102)+f(103)+ .. +f(200)?
999
1001
568
582
Ans: 1001
f(101) = 2, f(102) = 3
So from f(101) to f(109) it is 2+3+4+5+6+7+8+9+10 = 54
From f(110) to f(119) it is 2+3+4+5+6+7+8+9+10+11 = 65
From f(120) to f(129) it is 3+4+5+6+7+8+9+10+11+12 = 75
From f(130) to f(139) it is 4+5+.....+12+13 = 85
So the sum is 54 + 65 + 75 + 85 + 95 + 105 + 115 + 125 + 135 + 145 + 2 (2 is for f(200))
= 56 + 65 + ... 145
= 56 + 9/2 * (65+145) (Using sum of Arithmetic Progression formula)
= 1001

10) If all the numbers between 11 and 100 are written on a piece of paper, how many times will the number '4' be used?
17
18
19
20
Ans: 19
When 4 is in unit digit = 9*1 = 9 times (Zero cannot be in most significant place)
When 4 is in ten's digit = 1*10 = 10
Total = 19

11) Inspired by fibonacci series Sanket decided to create his own series which is 1, 2, 3, 7, 7, 22, 15, 67,.....
What number will come immediately before 63?
192
198
202
218
Ans: 202
There are two series.
1,3,7,15,31,63,127,... (previous term*2 + 1)
2,7,22,67,202,307,... (previous term*3 + 1)
So the is like 1,2,3,7,7,22,15,67,31,202,63,607

12) A car travelling at 5/7th of normal speed covers 42 km in 1hr 40min 48sec. Find the normal speed of the car.
35 kmph
40 kmph
45 kmph

50 kmph
Ans: 35 kmph
1 hr 40 min 48 sec = 6048 seconds
Let normal speed be x.
5x/7 = 42000/6048 m/s
x = 8400/864 m/s = 8400/864 * 18/5 = 35 kmph

13) A train travels 50% faster than a car. Both start from point a A at the same time and reaches point B which is 75 km away from A at the same time. On the way the train lost about 12.5 mins due to stoppages. What is the speed of the car?
120 kmph
180 kmph
140 kmph
90 kmph
Ans: 120 kmph
Let speed of car be 2x km/minute. Speed of train is 3x km/minute.
Let the time to go from A to B be T minutes.
2xT = 3x*(T-12.5) = 75
Solving T=37.5 minutes, 2x=75/37.5 = 2 km/minute.
Hence Speed of the car = 120 kmph

14) In how many ways can 7 different objects be divided among 3 persons so that either one or two of them do not get any object?
21
31
289
381
Ans: 381
When two of them do not get any object:
All 7 go to one person. Number of ways = 3
When only one of them does not get any object:
The remaining two can get in x+y=7 = (7-1)C(2-1) = 6 combinations [(1,6) (2,5) (3,4) (4,3) (5,2) (6,1)]
Now these two can be A,B or B,C or C,A
But as the objects are different (1,6) can be done in 7C1 = 7 ways, (2,5) in 7C2 = 21 ways, (3,4) in 7C3 = 35 ways,
(4,3) in 7c4 = 35 ways, (5,2) in 7c5 = 21 ways, (6,1) in 7c6 = 7 ways.
Overall count = 3+ 3*(7+21+35+35+21+7) = 3+378 = 381

15) If f(x) = 7x+12, what is the inverse function of f(x) equal to ?
12 - 7x
x/7 - 12
(x-12)/7
None of these
Ans: (x-12)/7
We multiply 7 and add 12.
So the inverse will be subtract 12 and divided by 7.

f-1(x) = (x-12)/7

16) Two vertical poles 2 meters and 8 meters high stand apart on a horizontal plane. The height in meters of the point of intersection of the lines joining the top of each pole to the bottom of the other pole is
0.9m
1.8m
1.2m
1.6m
Ans: 1.6m
We need to find x.
Using similar triangles,
x/8 = m/(m+n) and
x/2 = n/(m+n)
Adding these two equations,
5x/8 = (m+n)/(m+n) = 1,
x = 8/5 = 1.6m

17) What are the last two digits in 123 ^123! ?
01
09
81
None of these
Ans: 01
3^4 ends in 1.
123! has atleast two zeroes. Hence it is divisible by 4.
Using the shortcut (refer SkillRack.com video tutorials), the last two digits will be 01

18)
Two arithmetic series, s1 and s2 with each consisting of 150 terms are as below.
1,5,9..... and
3,6,9.....
How many terms of s1 and s2 are identical?
37
42
45
39
Ans: 37
The common difference of s1 is 4 and s2 is 3.
LCM of 4 and 3 is 12.
Last term of s2 = 3 + (150-1)*3 = 450.
Hence the identical terms form a series like 9,(9+12),(9+12+12) and so on, that is 9,21,33,...441
Let number of terms identical be N.
441 = 9 + (N-1)*12, N=37

19)
Find the sum up to 1000 terms for the series 10 + 84 + 734 + ..
8*[9^9000 - 1]/9 + 9000
8*[9^1000 - 1]/9 + 1000
9*[9^1000 - 1000]/8 + 1000000
9*[9^1000 - 1]/8 + 1000000
Ans: 9*[9^1000 - 1]/8 + 1000000
The series is as =(9+1)+(9^2+3)+(9^3+5)+...
= 9^1 + 9^2 + 9^3 + ... + 1 + 3 + 5 + ...
Using the formula for G.P, the above can be written as
= 9*(1 - 9^n)/(1-9) + n^2
= 9*(9^n - 1)/8 + n^2
So sum upto 1000 terms = 9*[9^1000 - 1]/8 + 1000000

20) Find the last two digits of 11221122!
28
32
64
76
Ans: 76
1122^1122! = 2^1122! * 561^1122!
1122! has more than 2 zeroes. This implies it is divisible by 20.
We know 2^20 ends with 76 and 76 multiplies with 76 will always give last two digits as 76.
Also as 1122! has last two digits as zero, using shortcut (refer SkillRack.com video tutorials), the last two digits are 01.
So the net last two digits = last two digits of (76*01) which is 76

21) A class consists of 100 students. 24 of them are are girls and 32 are not. What is the base being used?
8
6
9
5
Ans: 6
Let the base be b.
b^2 = 2b + 4 + 3b + 2,
b^2 -5b -6 = 0, Solving b=6 or -1 (Base cannot be negative and hence b=6)

22) What is the maximum sum of the terms in the arithmetic progression 25, 24.5, 24, ...?
612.5
681.5
637.5
592.5
Ans: 637.5
This A.P has initial term as 25 and common difference as -0.5.

After 0, the values are going to be negative and hence the maximum occurs when the term is 0.5 or 0.
So let us find the number of terms N from 25 to 0.
0 = 25 + (N-1)*-0.5,
N = 51
So sum of terms = 51/2 * (25+0) = 637.5

23) If n is the sum of two consecutive odd integers and less than 100, what is greatest possibility of n?
98
96
94
100
Ans: 96
Let the consecutive odd integers be x, x+2.
Given 2x+2 < 100,
x < 49
So x=47 and x+2=49
So greatest possibility of n = 47+49 = 96

24) In how many ways can we distribute 10 identical looking pencils to 4 students so that each student gets at least one pencil?
210
160
108
84
Ans: 84
Here the objects are identical and no student should get zero pencils.
That is the combinations like (0,0,0,10) or (0,2,3,5) are not permitted.
Hence total num of ways = n-1Cr-1
Here n=10 and r=4
Hence required num of ways = 9C3 = 84

25) George while driving along the highway saw road markers which are at equal distances from each other. He crosses the markers every 20 seconds. If he increases his speed by x meters per second, he crosses the markers at every 15 seconds. But if he increases his speed by y meters per second, he crosses the marker at every 10th second. If y-x = 40 meters per second, then what is the distance between two markers?
600m
800m
1200m
1600m
Ans: 1200m
Let the usual speed be S and distance between markers be D.
D/S = 20
D/(S+x) = 15

D/(S+y) = 10
Thus D=20S = 15S+15x = 10S+10y - Eqn 1
(S+y)/(S+x) = 15/10,
(S+x+40)/(S+x) = 15/10
10S + 10x + 400 = 15S + 15x
5S = 400-5x
Using Eqn 1, 5S = 400 - 5(S/3)
20S/3 = 400,
20S = 1200 which is nothing but the distance between markers in meters as per Eqn 1

26) One day Eesha started 30 minutes late from home and reached her office 50 minutes late while driving 25% slower than her usual speed. How much time in minutes does Eesha usually take to reach her office from home?
120 minutes
90 minutes
60 minutes
None of these
Ans: 60 mins
Overall delay = 50-30 = 20 mins.
Let original speed be S and distance be D.
D/S = D/(0.75S) - 1/3 (20 mins is 1/3 hours)
D/S = 4D/S3 - 1/3,
D/S(4/3 - 1) = 1/3
D/S = 1 hr = 60 mins. (D/S is nothing but T which is time taken)

27) One day Eesha started 30 minutes late from home and reached her office 50 minutes late while driving 25% slower than her usual speed. How much time in minutes does Eesha usually take to reach her office from home?
120 minutes
90 minutes
60 minutes
None of these
Ans: 60 mins
Overall delay = 50-30 = 20 mins.
Let original speed be S and distance be D.
D/S = D/(0.75S) - 1/3 (20 mins is 1/3 hours)
D/S = 4D/S3 - 1/3,
D/S(4/3 - 1) = 1/3
D/S = 1 hr = 60 mins. (D/S is nothing but T which is time taken)

28) A father purchases dress for his three daughters. The dresses are of same color but of different size. The dresses are kept in a dark room .What is the probability that all the three will not choose the dress of their size?
1/3
2/3
1/2

1/6
Probability that first daughter will not pick correct size = 2/3.
Second daughter has 2 dresses left. Hence the probability of not picking correct dress =1/2.
Third is anyways left with a wrong one. Hence probability =1/1.
Hence the required probability = 2/3 * 1/2 * 1 = 1/3

SET 12: 2018012BANNARI

1) How many six digit even numbers can be formed from the digits 1, 2, 3, 4, 5, 6 and 7 so that the digits should not repeat and the second last digit is even?

a. 2160
b. 6480
c. 720
d. 320

2) Jake can dig a well in 16 days, Paul can dig the same well in24 days. Jake, Paul and Hari together can dig the well in 8 days. Hari alone can dig the well in :

a. 48 days
b. 24days
c. 32 days
d. 96 days

3) A Sudoku grid contains digits in such a manner that every row, every column, and every 3 * 3 box accommodates the digits 1 to 9, without repetition. In the following Sudoku grid, find the values at the cells denoted by x and y and determine the value of 10x + 10y

	2	9						3
		4			1	7		8
5					x	2		
			3	4	7	1		
4		3	5					
		8			2			
		1			6			
	6			7		4		
8		Y			3	5		

a. 80
b. 140
c. 90
d. 60

4) Raj divided 50 into two parts such that the sum of their reciprocal is 1/12, we get the parts as :

a. 28, 22
b. 24, 36
c. 20, 30
d. 36, 14

5) In the IT department of backrub, the administrator password is changed every month. The team of administrators, spread across the globe, receive an 8 digit number via email. This number is to be prefixed with a single digit number and suffixed with a single digit number to get the actual password. The password is divisible by 11 and 8. If the team received 65351364 this month, then which of the following pairs give prefix and suffix respectively.

a. 8, 9
b. 7, 8
c. 3, 4
d. 2, 7

6) Consider the sequence of numbers 6, 4, 0, 4, …. Where for n>2 then n^{th} term of the sequence is the units digit of the sum of the previous two terms.

Let S_n denote the sum o the first n terms of this sequence. What is the smallest value of n for which S_n>2273?

a. 570
b. 576
c. 568
d. 571

7) A conical tent is to accommodate 10 persons. Each person must have 6 sq. meter space to sit and 30 cubic meter of air to breathe. What will be the height of the cone?

a. 75 m
b. 37.5 m
c. 150 m
d. 15 m

8) The savings of the employee equals income minus expenditure. If the income of A, B, C are in the ratio is 1 : 2 : 3 and their expenses ratio is 3 : 2 : 1, then what is the order of the employees A, B, C in the increasing order of the size of their savings?

a. C > B > A

b. B > A > C
c. A > C > B
d. B > C > A

9) Two jars having a capacity of 3 and 5 litres are filled with mixtures of milk and water. In the smaller jar 25% of mixture is milk. In the larger jar 25% of mixture is water. The jars are emptied into a 10 litre can, whose remaining capacity is filled up with water. Find the % of milk in the can.

a. 0.45
b. 0.55
c. 0.5
d. None of these

10) If M is 30% of Q, Q is 20% of P, and N is 50% of P, then M/N =

a. 3/250
b. 4/3
c. 6/5
d. 3/25

11) Three containers A, B and C are having mixtures of milk and water in the ratio of 1 : 5, 3 : 5 and 5 : 7 respectively. If all the containers are full and their capacities are in the ratio 5 : 4 : 5, find the ratio of milk to water, if the mixtures of all the three containers are mixed together.

a. 53 : 115
b. 53 : 113
c. 51 : 113
d. 54 : 115

12) Consider a sequence 2,1,3,4 the nth term be the unit digits of the sum of last two numbers find sn>2727

1)545 2)548 3)553 4)547

13) a2=1 as root 2=1.414 a3=root 3 thn find (1/a1+1/a2...+1/182)

1)24.53 2)25.00 3)26.00