**ALVA’S PRE –UNIVERSITY COLLEGE , MOODBIDRI**

**JEE/NEET CRASH COURSE 2019-20**

**MATHEMATICS**

TOPIC : MATHEMATICAL INDUCTION,SEQUECES AND SERIES,

MATHEMATICAL REASONING

Solutions:

1. Ans: d P(1),P(2),P(3) all are false. P(4) is true
2. Ans:b for n =1, P(n)= 209 , For n =2 , P(n) = 4235

HCF of 209 and 4235 is 11

So, P(n) is divisible by 11. Hence λ = 11

1. Ans:a for n=1 ,p(1) :65 +k is divisible by 64

Thus,k should be -1

4) Ans: c

5) Ans: b Product of r consecutive integers is divisible by r!

6) Ans: c Put n=1,2,3,…. Verify

7) Ans: b

Let the numbers be n, n+1, n+2. Sum of the cubes of successive natural

Numbers is . Put n=1,2,…. And verify

8) Ans:a put n=1 ,202+k is divisible by 9 if k = 5

9) Ans : a product of 5 consecutive numbers

10) Ans : a xn -1n is a multiple of x-1

11)Ans: d

12Ans: b (a-1)2=(a-2)(a+1) => a=3

13)Ans:d put n=1

14) Ans:b successive differences are in AP .

using method of differences solve it .

15) Ans: c a=253 , d = -5 ,t12=253+12x-5=198

16) Ans:d

17) Ans:c sum =101+103+105+….+199= 50/2[101+199]

18) Ans:b 

19) Ans:b put n=2

20) Ans:a 

21) Ans:c a+d, a+2d, a+5d are in GP => d= -2a

22) Ans: d

23) Ans:c Tn=Sn-Sn-1

24) Ans:c m2 - n2 = (2n+3)2-(2n+1)2

25) Ans:b put n=3

26) Ans:a first common term = 11=a , d=LCM(4,5) =20 , T10 =11+9x20=191

27) Ans:b 2(1+2+3+….12) = 2

28) Ans:d put n=2

29) Ans:b AM ≥ GM

30) Ans:d

31) Ans:a

32) Ans:c

33) Ans:a

34) Ans:d

35) Ans:a

36) Ans:d

37) Ans:b

38) Ans:c

39) Ans:c

40) Ans:b

41) Ans:c

42) Ans: a

43) Ans: b

p : x AB , q : xA , r : xB

Then given statement is p

Then ~ [ p] = p 

44) Ans:b ar2=4 , a.ar.ar2.ar3.ar4 =45

46) Ans: a

nth term = (n+1) = (2

47) Ans: a

, and  and

48) Ans: a

;

2 , n(n+1)=42 ,

=> n=6 or n= -7 , but n-7



49) Ans: b

Put n=1, n=2 and verify

When n=1 , =1 2) gives answer 1

When n=2 , +=1+= option 2) gives

50) Ans: c

(1+2+3+……+n)+( +…..+)= =

51) Ans: d

(2 ,simplifying we get , clearly this holds good for n=1

52) Ans:c T2= S2-S1

53) Ans:c ar3=p ,ar6=q , ar9=r => pr= a2r12=q2

54)Ans:a a+6d =40 S13=13/2[2a+12d]

55) Ans:d

56) Ans:b a+5d =61 and a+9d =105 , solve it

57) Ans:a

58) Ans:a use result:

59) Ans:b put n=2

60) Ans:b using method of differences

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