TEST -11
CLASS 10+1

Max. Marks-55

1(a) Find the value of $i^{104}+i^{105}+i^{106}+i^{107}$.

(b) Find the value of $\left(1-\omega-\omega^2\right)\left(1-\omega+\omega^2\right)\left(1+\omega-\omega^2\right)$.

(c) If C (n,6) = C (n,10) , find n.

(d) If log a, log ($\dfrac{a^2}{b}$), log ($\dfrac{a^3}{b^2}$) ....is an A.P. , find common diff.

(e) Find x so that 2 is the slope of the line through (2,5) and (x,3).

(f) Find the distance between the line 12x – 5y + 9 =0 and the point (2,1). 1×6

2. Express $\dfrac{(2+3i)(1-2i)}{(1-i)^3}$ in the form of x + iy.

3. Find square root of 5-12i.

4. How many numbers are there between 100 and 1000 such that at least one of their digits is 7 ?

5. Find how many arrangements can be made with the letter of the word 'MATHEMATICS' ? In how many of them vowels do not occur together ?

6. A group consists of 4 girls and 7 boys. In how many ways can a team of 5 members be selected if the team has at least 3 girls ?

7. The sum of n terms of two A.P. are in the ratio 5n+4 : 9n+6.Find the ratio of their 18th terms.

8. Find n so that $\dfrac{a^{n+1}+b^{n+1}}{a^n+b^n}$ may be A.M. between a and b.

9. Find the sum to n terms; 0.7 +0.77 + 0.777 + ……………

10. The product of first three terms of a G.P. is 1000. If we add 6 to its second term and 7 to its 3rd term, the three terms form an A.P. Find the terms of the G.P.

11.Find the equation of a straight line passing through the pt (2,2) s.t. the sum of its intercepts on the axes is 9.

12. Find the eqn of right bisector of segment joining (3,4) and (-1,2).

13. Find the image of the pt (3,8) w.r.t.the line x + 3y =7.

14.The vertices of a triangle are (4,-3),(-2,1) and (2,3).Find the co-ordinates of the circumcentre of the triangle.   13$\times$ 3 =39

15. Prove that by M.I. $10^{n}+3.4^{n+2}+5$ is divisible by 9.

16. If C(n,r) : C(n,r+1)=1 :2 and C(n,r+1): C(n,r+2) = 2:3, find the value of n and r.

                                                                        2$\times$ 5=10