**QUESTION PAPER -SETB**

 **CLASS XI**

 **SESSION: 2021-22**

 **Mathematics (Code-041)**

 **Term-1**

**Time Allowed: 90 minutes Maximum Marks: 40**

**General Instructions:**

1. **This question Paper contains three sections-A, B and C. Each part is compulsory.**
2. **Section –A has 20 MCQs, attempt any 16 out of 20.**
3. **Section –B has 20 MCQs, attempt any 16 out of 20.**
4. **Section –C has 10 MCQs, attempt any 8 out of 10**
5. **There is no negative marking.**
6. **All questions carry equal marks.**

 **SECTION A**

**In this section , attempt any 16 questions out of Questions 1-20.**

**Each Question is of 1 mark weightage.**

**1. The median of the data 3, 9, 5, 3, 12, 10, 18, 4, 7, 19, 21 is**

 **(a) 9 (b) 3 (c) 6 (d) 4**

**2. The range of signum function is the set**

 **(a){-1, 0, 1} (b) R (c) R+ (d) N**

**3.**  **The standard deviations for first 10 natural numbers is**

 **(a) 5.5 (b) 3.87 (c) 2.97 (d) 2.87**

**4. The modulus of** $\frac{1+i}{1-i}$ **is**

 **(a) - 1 (b) 1 (c) 2 (d) 0**

**5. The additive inverse of** $\left(2+3i \right)$ **is**

 **(a)** $\left(2+3i \right)$ **(b)**$ \left(–2-3i \right)$ **(c)**$ \left(-2+3i \right)$ **(d)** $\left(2-3i \right)$

**6. The conjugate of** $\left(–i-5\right)$ **is**

 **(a)** $\left(i+5\right) $ **(b)** $\left(5i\right)$ **(c)** $\left(i-5\right)$ **(d)** $\left(–i-5\right)$

**7. Let A= {1, 2} and B= { 7, 8, 9}, the number of relations from A to B are**

**(a)** $2^{2}$ **(b)** $2^{3}$ **(c)**$ 2^{5}$ **(d)** $2^{6}$

**8. The set {x: x**$\in R,-5<x\leq 7\} can be written as$

**(a) [-5,7] (b) (-5,7) (c) (-5,7] (d) [-5,7)**

**9. The sum of the x- intercept and y- intercept of the line** $x+y=\frac{1}{2}$ **is**

 **(a) 5 (b) 4 (c) 1 (d)** $\frac{1}{2}$

**10. If** $\lim\_{x\to 3}\frac{x^{n}-3^{n}}{x-3}=108, then the value of n is $

 **(a) 5 (b) 4 (c) 6 (d) 0**

**11. The mean of first five prime numbers is**

 **(a) 6.5 (b) 2 (c) 5.6 (d) 28**

**12. The value of [2.5] +** $\left|-4\right|$ **– 4 is equal to**

**(a) -4 (b) 8 (c) 2.5 (d) 2**

**13. The range of the function f(x) =**$\left|x-1\right|, x\in R$ **is**

 **(a) R (b) (1,**$\infty )$ **(c) [0,** $\infty $**) (d) {1,0}**

**14. If** $ \frac{a+ib}{a-ib}$**=**$x+iy$ **, then the value of** $x^{2}+y^{2}$ **is**

**(a) 1 (b) 4 (c) 0 (d) 2**

**15. If x, y, z are positive integers then the value of expression (x+y)(y+z)(z+x) is**

 **(a) =8xyz (b) >8xyz (c) <8xyz (d) =4xyz**

 **16. Express** $\frac{1}{2+i \sqrt{3}}$ **in the form of** $a+ib$

 **(a)** $\frac{2+i\sqrt{3}}{7}$ **(b)**$ \frac{2-i\sqrt{3}}{7} $ **(c)** $\frac{1+i\sqrt{3}}{6} $ **(d)** $\frac{3+i\sqrt{3}}{4}$

**17. In an A.P. the pth term is q and the** $(p+q)^{th} is 0.Then the q^{th}$ **term is**

 **(a) –p (b) p+q (c) p (d) p-q**

**18. If the sum of n terms of an A.P. is given by Sn=**$ 3n+2n^{2}$ **, then the common difference of the A.P. is**

 **(a) 3 (b) 2 (c) 6 (d) 4**

**19. The third term of G.P. is 4. The product of its first 5 terms is**

 **(a) 64 (b) 256 (c)** $4^{5}$ **(d) None of these**

**20. If (4x+3 , y)= (3x+5 , -2) , the value of x + y is**

 **(a) 16 (b) 12 (c) 0 (d) 6**

 **SECTION B**

**In this section , attempt any 16 questions out of Questions 21-40.**

**Each Question is of 1 mark weightage.**

 **21. The slope of the line** $2x+y=0 is$

 **(a) -2 (b)** $ \frac{1}{2}$ **(c) 2 (d) 0**

 **22. The point of intersection of the lines** $2y-3x=-4 and is x+y=3$ **is**

 **(a) (2,2) (b) (1,**$ 2)$ **(c) (2, 1) (d) (1,0)**

**23. For what values of x are the numbers (**$x+9)$ **,**$\left(x-6\right)and 4 in G.P.$

 **(a) 1, 16 (b) 1,10 (c) 0,16 (d) 0, 10**

 **24. The distance of the point (1,-3) from the line** $2y-3x=4 is $

 **(a) 26 (b)**$\frac{7\sqrt{13}}{13}$ **(c)** $\sqrt{13}$ **(d) 13**

 **25 . A U** $∅ $**= ?**

 **(a)**$ ∅$ **(b) A (c) 0 (d) none of these**

 **26. The G.M. of two numbers is 8 and their A.M. is 10. The numbers are**

 **(a) 12, 4 (b) 16, 8 (c) 4, 32 (d) 16, 4**

 **27. The domain of the function *f* given by *f (x) =***$\frac{x^{2}+2x+1}{x^{2}-x-6}$

**(a) R – {3, 2} (b) R – {–3, -2} (c) R**

**(d) R – {3, – 2}**

 **28. The additive identity of** $\left(5i-5\right)$ **is**

 **(a)** $\left(5i-5\right) $ **(b)** $ i$ **(c) 0 (d) 1**

 **29. The range of the data 12,15,18,21 is**

 **(a) 3 (b) 9 (c) 6 (d) 4**

 **30. The value of** $ i^{19}$ **is**

 **(a) i (b) 1 (c) 19 (d) –i**

 **31. Measures of dispersion are**

 **(a) Range and Quartile deviation only.**

 **(b) Quartile deviation and mean deviation only.**

 **(c) Mean deviation only .**

 **(d) Range, Quartile deviation, mean deviation and standard deviation.**

**32. The mean deviation about the mean of the data 5, 3, 7, 8, 4, 9 is**

 **(a) 6 (b) 8 (c) 12 (d) 2**

**33. Equation of x axis is**

 **(a)** $x=0$ **(b)** $ y=0$ **(c)** $ x-y=0$ **(d)** $ x+y=0$

**34.**$ Let f\left(x\right)=2x^{2}-3x+5, g\left(x\right)=-3x^{2}+2x-1 , then value of f\left(1\right)+ g\left(1\right) $

 **(a) -6 (b) 4 (c) -15 (d) 2**

**35. The domain of** $f\left(x\right)= \sqrt{16-x^{2}}$ **is**

 **(a) (-4, 4) (b) [- 4 ,-**$\infty ]$ **(c) R (d) [-4,4]**

**36. If A and B are two sets , then A**$ ∩(A∪B)$ **equals to**

 **(a) A (b) B (c)** $∅$ **(d) A**$∩B$

**37. If the points A (x,-1) , B (2,1) and C(4,5) are collinear , then x is**

**(a) 1 (b) -4 (c) -5 (d) -2**

**38. The value of** $\lim\_{x\to 0}\frac{sin3x}{sin4x}$ **is**

 **(a)** $ \frac{3}{4}$ **(b)** $\frac{4}{3}$ **(c)** $\frac{1}{4}$ **(d)**$ \frac{1}{3}$

**39. If** $\lim\_{x\to 0}\frac{e^{x}-1}{x} is equal to $

 **(a) e (b) 0 (c) -1 (d) 1**

**40. The multiplicative inverse of 4-3i is**

**(a)** $\frac{4+3i}{25} $**(b)** $\frac{3+4i}{25} $ **(c)** $\frac{ 3-4i}{25} $**(d)**$ \frac{4-3i}{25}$

 **SECTION C**

 **In this section, attempt any 8 questions .**

 **Each Question is of 1 mark weightage.**

 **Questions 46-50 are based on a CASE-STUDY.**

**41. Angle between the lines** $y=x and x=-y is $

 **(a)** $0^{0}$ **(b)**$ 90^{0}$ **(c)** $45^{0}$ **(d)** $180^{0}$

**42. The sum of the series 1+**$\frac{1}{3} $**+** $\frac{1}{9}$ **+** $\frac{1}{27}$ **……………..**$\infty $ **is**

**(a)** $\frac{3}{2}$ **(b) 1 (c) 2 (d)** $\frac{3}{4}$

 **43. The value of** $\lim\_{x\to π}\frac{sinx}{π-x}$ **is**

 **(a) 1 (b) 2 (c) -1 (d) -2**

 **44. The equation of the straight line passing through the point (3, 2) and perpendicular to the line y=x is**

 **(a)**$ x+y=5$ **(b)** $ x-y=5$ **(c)** $x+y=1$ **(d)** $x-y=1$

 **45. The value of** $\lim\_{x\to \frac{1}{2}}\frac{4x^{2}-1}{2x-1}$ **is**

 **(a) 0 (b) 2 (c) -1 (d) does not exist**

**CASE STUDY:**

**Let X= {Ram, Geeta, Akbar} be the set of students of class XI. Who are in school hockey team. Let Y= {Geeta, David, Ashok} be the set of students from class XI who are in the school football team.**

**Based on the above information answer the following.**

**46. Y**$∪\left(X∩Y\right) $ **is equal to**

1. $∅$
2. **X**
3. **X**$∪Y$
4. **Y**

**47. Identify the singleton set**

1. **X**$∩Y$
2. **X**
3. **Y**$∪X$
4. **Y**

**48. X( XY) is equal to**

1. **Y**
2. **X**
3. $∅$
4. **X**$∩Y$

**49. Let p and q denote the number of elements in the power sets of X and Y respectively, then the value of p**$- q$ **is**

1. **8**
2. **16**
3. **0**
4. **3**

**50. The set XY is**

 **(a) {Ram, Geeta, David}**

 **(b) {Ram, Akbar, David, Geeta, Ashok}**

 **(c) {Ram, David, Ashok, Geeta}**

 **(d) {Geeta}**