FEDERAL UNIVERSITY OF TECHNOLOGY MINNA
MATIII SURE QUESTIONS BY MS (08162097494)

1. if Set P={x:even numbers between 1-10} and Q={x:7<x≤16}. Find PnQ
A: {7,8,10}
B: {8,10}
C: {8,9,10}

2. Given that X = {x: 3 < x < 6 } and Y = {x: 4 ≤ x ≤ 6}. Find X ∩ Y.
A: {4, 5}
B: {4, 5, 6}
C: {3, 4, 5}

3. Given the universal set = {1,2,3,4,5} and P={1,2,4}, Q={2,4,5}, find P^1 ∩ Q.
A: {1}
B: {2}
C: {5}

4. Given that P={1,3,5,7} and Q={2,5,6,8,9}, determine P ∪ Q.
A: {1,3,5,8,9}
B: {1,2,4,6,9}
C: {1,2,3,5,6,7,8,9}

5. If set P={even numbers} and Q={x: 7< x ≤16}, list the elements of P ∩ Q.
A: {2,6,12,16}
B: {2,4,8,12}
C: {8,10,12,14,16}

6. Given the universal set ={1,2,3,4,5,6} where X={2,4,6} and Y={1,2,6}, find $(X \cap Y)^1$.
A: {1,4,5}
B: {1,3,4,5}
C: {2,4,5,6}

7. which of the following best describe a set?
A: A set is any collection of objects such that given an object it is possible to determine weather that object belong to the given collection or not.
B: A set is collection of objects
C: The set of all letters of the alphabet.

8. . A set can be completely specified by one or combination of the following
i. By listing all of the member of the set.
ii. By describing the element of the set.
iii. By enclosing within braces {} any general element with a clearly define properly.
A: I ,II and III
B: I and II only
C: III only

9. What is the power set of the set {2,3,4}
A: 5
B: 8
c: 3

10. Given set X={1,2,3} and set Y={3,1,2}, which of the following statement is true for X and Y.
A: X=Y
B: $X \geq Y$
C: $X < Y$

11. If A={1,2,3,4} and B={6,3,4,2,1}. what is the cardinality of Set B?
A: 4
B: 5
C: 25

12. In an examination, 18 students passed MAT111, 17 students passed PHY113, 11 students passed both subject. Find the number of students that passed MAT111 only.
A: 5
B: 6
C: 7

13. In a class of 40 students, 30 take Agriculture and 20 take Physics. If 8 students take neither Agriculture nor Physics, find the number of students who take Agriculture but not Physics.
A: 2
B: 8
C: 12

14. In a class of 500 students, 270 offer Chemistry,
250 offer Geography, 110 offer neither. Find the number of students who offer Chemistry and Geography. it
A: 110
B: 120
C: 130

15. Given that P = {1, 3, 5, 7} and Q = {2, 5, 6, 8, 9}. find $(P \cap Q)$.
A: {}
B: {3, 5}
C: {5}

16. The cardinality of the set Z = {M, I, S, S, I, S, S, I, P, P, I} is

A: 4

B: 6

C: 8

17. P and Q are two sets such that is n($P \cup Q$) is 50,

n(P) is 40 and n(Q) is 32. What is n($P \cap Q$)?

A. 10

B. 22

C. 18

18. If $X \cap Y = \varnothing$, then X and Y are said to be.

A: Finite sets

B: Disjoint sets

C: Null sets

19. In an examination, 25 students passed MAT112 while 22 students passed STA117. If 15 students passed both courses and 2 students failed both courses. Find the total number of students that sat for the examination.

A: 34

B: 33

C: 32

20. Sets A and B are defined by A = {3, 5, 7, 8} and B = {x, y, z}. Is $x \in A$?

A. True

B. False

21. If x+iy = 3-i/2+i. find X and y

A: 1-i

B: i-1

C: -i-1

22. find the argument of $Z = (i-3)/2+i$
A: $\pi/4$
B: $-\pi/4$
C: $3\pi/4$

23. Find the modules of $Z = (2+i)^2 (1-i)/3i-1$
A: $11i-2/5$
B: $-11i-2/5$
C: $2+11i/5$

24. Express $\cos^2\theta$ in multiple angles
A: $2(\cos2\theta + 2\cos\theta)$
B: $2^2(2\cos\theta + \cos2\theta)$
C: $2^{-1}(\cos2\theta + 2\cos\theta)$

25. Which of the following expression is not true about De'moives Theory
A: $(\cos\theta + i\sin\theta)^n = \cos(n\theta) + i\sin(n\theta)$
B: $(\cos\theta + i\sin\theta)^{-n} = -\cos(n\theta) - i\sin(n\theta)$
C: $(\cos\theta + i\sin\theta)^{-n} = \cos(n\theta) - i\sin(n\theta)$

26. Express $\sin^5\theta$ in multiple angles
A: $\sin^5\theta = -2^{-4}[\sin5\theta + 5\sin3\theta + 10\sin\theta]$
B: $\sin^5\theta = -2i^{-4}[\sin5\theta + 5\sin3\theta + 10\sin\theta]$
C: $\sin^5\theta = -2^{-3}[\sin5\theta + 5\sin3\theta + 10\sin\theta]$

27. If $Z_1 = 1 + 2i$ and $Z_2 = 4 - 3i$. Find $Z_1 + Z_2$
A: 5-i
B: 4-i
C: 5+i

28. The product of complex numbers results in ___
number.
A. real
B. imaginary
C. complex

29. Which of the following expression is a complex number
A: 4i - i
B: 4 - i
C: 4i + i

30. i^9 is equivalent to
A: -i
B: I
C. 1

31. . A mapping f:→A in which every element in the domain of f is the same as the element of the co-domain is called.
A: Identity mapping
B: One-one mapping
C: Onto-mapping

32. Given two non-empty sets A and B, if there is a rule which links that element in set A to a unique element in set B, then such a rule is called.
A: Range
B: Co-domain
C: Mapping

33. Determine the domain D of the mapping f: → 2x-3, if C={-3,-1,5} is the range and f is defined on D.
A: {0,1,4}
B: {1,2,4}
C: {1,3,5}

34. Let f: X → Y be a mapping. If every element of the co-domain is an image of at least one element in the domain, the mapping f is called.
A: One-one mapping
B: Onto-mapping
C: Constant mapping

35. The type of mapping in which it's Co-domain is the domain of another mapping is known as _____ mapping
A: Onto
B: composite
C: Domain

36. Determine the Domain "D" of the mapping f: x → $2x^2-1$ if C = {1,7,17} is the range. And f is on D
A: (1,-2,3,-3)
B: (1,2,2,-3,3)
C: (-1,1,-2,2,-3,3)

37. A mapping g:A→B in which all element of the domain g are mapped into a single element in the co-domain is called _____
A. Range
B. onto
C. One to one

38. One of the following ideas best described a function.
A: A rule of correspondence beween two sets
B: Equation or formular involving variables and constants
C: A rule that assigns real number to real number.

39. if If $f(x) = 1/2x - 3$, find $f^{-1}(x)$
A: $2(x+3)$
B: $4(X+3)$
C: $(2X+3)$

40. Given $f(x) = 2x+1$, $g(x) = x2-3$ and $h(x) = 3x+2$. Find fogoh.
A: $18x^2+12x+3$
B: $18x^2+24x+3$
C: $18x^2+24x-3$

41. What is the coefficient of x^3 in $(x+1/2)^8$
A:-7/4
B: 7/4
C: -7

42. Express n!/(n+1)!
A: 1/(n+1)(n)
B: (n+1)
C: 1/(n+1)

43. 41. What is the coefficient of x^2 in $(1+5x)^2$
A: 24
B: 26
C: 25

44. What is the fourth term in the expression of $(x+1/2)^8$?
A: $7x^5$
B: $8x^5$
C: 7

45. Expand $(x+2y)^{-4}$ to its third term
A: $x^{-4}-8yx^{-5}+10y^2x^{-6}$
B: $x^{-3}-8yx^{-5}+40y^2x^{-6}$
C: $x^{-4}-8yx^{-5}+10y^2x^{-6}$

46. Given that; 5x+3, 6x-2 and 4x+1 are three consecutive numbers in a GP. Determine the quadratic equation for the progression.

A: $16x^2 - 41x + 1 = 0$

B: $16x^2 + 41x + 1 = 0$

C: $16x^2 - 41x - 1 = 0$

47. The third term of an AP is 6 and the seventh term is 30. Determine the common difference and the first term.

A: 6 and -6

B: -6 and 6

C: 5 and 6

48. Find the sum of the first 50 natural numbers;

A: 1270

B: 1265

C: 1275

49. Find the sum to infinity of the series: 20+ 4+ 0.8 + 0.16 + 0.032 + ...

A: 25

B: 16

C: 20

50. Given that; 5x+3, 6x-2 and 4x+1 are three consecutive numbers in an AP. Determine the value
of x for the progression.

A: 7/3

B: 8/3

C: 4/3

51. Find the three consecutive number whose sum is 21 and product is 315

A: 9,7,4

B: 5,7,9

C: 419

52. Express 0.3333 recurring as a fraction
A: 1/3
B: 3/9
C: 2/9

53. Given that x-2, x-1 and 3x-5 are three consecutive terms of G.P. Determine the value of x.
A: x=2/3 or 3
B: x=3/2 or 3
C: x=3/2 or 1/3

54. The first term of an A.P. is 6 and the fifth term
is 18. Find the number of terms in the series having a sum of 162.
A: 9
B: 12
C: 6

55. When /r/>1, sum of the first nth term of a G.P is equal to?
A: $a(r^n-1)/r-1$
B: $a(1-r^n)/r-1$
C: Unity

Note: this questions was taken in random, if spot
any mistakes there, don't hesitate to contact MS on WhatsApp: (08162097494)

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56. If $Z_1 = 1-3i$; $Z_2 = -2+5i$, determine $\frac{Z_1 Z_2}{Z_1+Z_2}$ in the form $a+bi$.

A: $-\frac{9}{5} + \frac{37}{5}i$

B: $\frac{9}{5} - \frac{37}{5}i$

C: $-\frac{9}{25} - \frac{37}{25}i$

57. Given that $\frac{x-5}{(x^2-4)(x^2-9)} = \frac{A}{x-2} + \frac{B}{x+2} + \frac{C}{x-3} + \frac{D}{x+3}$. Find the values of (A, B)

A: $[-\frac{7}{20}, \frac{3}{20}]$

B: $[-\frac{7}{20}, -\frac{3}{20}]$

C: $[-\frac{7}{20}, -\frac{1}{15}]$

58. find the real part of $\frac{2+3i}{3+2i}$

A: $-\frac{5}{13}$

B: $-\frac{12}{13}$

C: $\frac{12}{13}$

59. $\frac{x^2-4x+5}{(x+1)(x^2-9)} = \frac{A}{(x+1)} + \frac{B}{x-3} + \frac{C}{x+3}$ find the value of B

A: $-\frac{13}{4}$

B: $\frac{1}{12}$

C: $-\frac{5}{4}$

60. $3x^2+B$

60. Given $\frac{3x^2+3x-2}{(x-1)(x+1)} = A + \frac{Bx+C}{(x-1)(x+1)}$ what is the values of A, B and C

A: [3, 3, -2]

B: [3, 3, 1]

C: [3, -3, -1]

~~61. $\frac{5+x}{6x}$~~

61. $\frac{5+x}{(2x^2-3)(x-1)} = \frac{Ax+B}{2x^2-3} + \frac{C}{x-1}$ find the value of C

A: -6

B: -5

C: 5

62. $Z = 4-2\sqrt{2}i$ find $Z\bar{Z}$

A: 24

B: 21

C: 22

63. What is the value of a. given $a+ib = \frac{1-i}{2+i}$

A: $-\frac{1}{5}$

B: $\frac{1}{5}$

C: $\frac{-3}{5}$

64. Solve $\left(\frac{8}{27}\right)^{2/3}$

A: 4/8

B: 4/9

C: 2/3

65. find x, if $9\log_x 5 = \log_5 x$

A: 25

B: 1/125

C: 125

66. Express this $\log_2 y + \log_4 x = 4$ in a form that does not involve logarithms:

A: $yx^{1/2} = 2^4$

B: $yx^2 = 2^4$

C: $y^2x^{1/2} = 2^4$

67. Simplify $3^x = 1/27$ find the value of x

A: 3

B: 2

C: -3

68: $10^x = \frac{1}{0.001}$ find x

A: 3

B: -3

C: 3/2

69. solve for x in the following equation $2^{2x} + 16 = 32$

A: 1/2

B: 2

C: 4

70. if α and β are the roots of equation $2x^2-3x+1=0$
find $\alpha/\beta + \beta/\alpha$

A: $5/2$

B: $3/2$

C: $2/3$

[By MS 08162097494]

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