RESOURCES FOR

"SSC-IMATHEMATICS"

ZUEB EXAMINATIONS 2021

PREFACE:

The ZUEB examination board acknowledges the serious problems encountered by the schools and colleges in smooth execution of the teaching and learning processes due to sudden and prolonged school closures during the covid-19 spread. The board also recognizes the health, psychological and financial issues encountered by students due to the spread of covid-19.

Considering all these problems and issues the ZUEB Board has developed these resources based on the condensed syllabus 2021 to facilitate students in learning the content through quality resource materials.

The schools and students could download these materials from www.zueb.pk to prepare their students for the high quality and standardized ZUEB examinations 2021.

The materials consist of examination syllabus with specific students learning outcomes per topic, Multiple Choice Questions (MCQs) to assess different thinking levels, Constructed Response Questions (CRQs) with possible answers, Extended Response Questions (ERQs) with possible answers and learning materials.

ACADEMIC UNIT ZUEB:

1: Multiple Choice Questions:

The Multiple-Choice Questions with a stem, correct answer and 3 distractors or plausible wrong answers format is designed to assess the content and thinking of students from; R (Remembering); U(Understanding) and A (Applying, Analyzing, Evaluating, Creating). The questions are also classified into three difficulty levels accordingly; D(DIFFICULT), M (MODERATE), E (EASY)

HOW TO ATTEMPT AN MCQ:

MCQ:

- **EACH MCQ HAS FOUR OPTIONS, A, B, C AND D. SELECT ONE OPTION AS THE BEST ANSWER AND FILL IN THE CIRCLE OF THAT OPTION, FOLLOWING THE INSTRUCTIONS GIVEN BY THE INVIGILATOR.**
- **USE BLACK PEN/PENCIL TO FILL IN THE CIRCLE.**

S#	MCQ'S MATERIAL	KEY	CL	DL
1.	$(A')' =$ ___. a) A' b) A c) $\cup$ d) ϕ	**b**	**K/A**	**E**
2.	{0,1, 2, 3,………}is the setof : PrimeNo. Integers WholeNo. Even No	**c**	**K/A**	**E**
3.	Theset {1, 3,5, 7,……}is closed for: a. Addition b. Multiplication c. Subtraction d. Division	**a**	**K/A**	**M**

4.	$8^{1/3} \times 36^{1/2} =$ _____ . a) 8 b) 12 c) 16 d) 18	**b**	**K/A**	**E**
5.	The characteristics of log 0.0456 is _____ . a) $\bar{3}$ b) 3 c) $\bar{2}$ d) 2	**c**	**K/A**	**M**
6.	If $\log_{10}1000 = y$, then $y =$ _____ . a) 10 b) 2 c) 3 d) 0	**c**	**K/A**	**M**
7.	The common logarithm has the base _____ . a) π b) e c) 10 d) 0	**c**	**K/A**	**M**
8.	$$\left(\sqrt{x} - \sqrt{y}\right)\left(\sqrt{x} + \sqrt{y}\right) = \underline{\hspace{2cm}}$$ a) $\left(\sqrt{x} - \sqrt{y}\right)$ b) $(x + y)$ c) $(x - y)$ d) $\left(\sqrt{x} + \sqrt{y}\right)$	**c**	**K/A**	**E**
9.	The degree of polynomial $8x^2y^3 - 5x^2y^5 - x^3y^7$ is _____ . a) 5 b) 7 c) 3 d) 9	a **K/A**	**E**
10.	It should be added to $x^2 + \dfrac{1}{x^2}$ to make it perfect square a) Xy b) x^2y^2 c) 2xy d) 2	d **K/A**	**E**
11.	The H.C.F of $x^4 - y^4$ and $x^2 + y^2$ is ___ a. $x^4 - y^4$ b. $(x^2 + y^2)(x^2 - y^2)$ c. $x^2 + y^2$ d. $x^2 - y^2$	c **K/A**	**E**
12.	The additive inverse of $\begin{bmatrix} -2 & 4 \\ 3 & -6 \end{bmatrix} =$ _____ .	**d**	**K/A**	**E**

	a. $\begin{bmatrix} -2 & 4 \\ 3 & -6 \end{bmatrix}$ b. $\begin{bmatrix} -2 & 4 \\ -3 & 6 \end{bmatrix}$ c. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ d. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$				
13.	If A= $\begin{bmatrix} -2 & 4 \\ 3 & -6 \end{bmatrix}$ and B = $\begin{bmatrix} -2 & 4 \\ 3 & -6 \end{bmatrix}$, A + B = _____ a. $\begin{bmatrix} -4 & 8 \\ 6 & -12 \end{bmatrix}$ b. $\begin{bmatrix} 9 & 4 \\ -2 & 7 \end{bmatrix}$ c. $\begin{bmatrix} 11 & 1 \\ 2 & 12 \end{bmatrix}$ d. $\begin{bmatrix} 7 & -7 \\ -6 & 12 \end{bmatrix}$	a	K/A	E
14.	If $\begin{bmatrix} -2 & 4 \\ 3 & -6 \end{bmatrix}$ is a singular matrix, then p=_____. a. 2 b. 3 c. 4 d. 6	d	K/A	M
15.	Atrianglehavingnoside congruentiscalled_____t a. Isosceles b. Scalene c. Acute d. Right	b	K/A	M
16.	$(a-b+c)^2=$_____ a) $a^2+b^2+2ab+2bc+2ca$ b) $a^2+b^2+c^2+2ab-2bc+2ca$ c) $a^2+b^2+c^2-2ab-2bc+2ca$ d) Noneof these	c	K/A	M
17.	Themeasureof eachangle ofan equilateraltriangle is_____ a) $90°$ b) $45°$ c) $30°$ d) $60°$	d	K/A	M
18.	Thecomplement of40°is_____. a) $60°$ b) $140°$ c) $90°$ d) $50°$	d	K/A	M

19.	C	K/A	M
20.	C	K/A	M
21.	C	K/A	E
22.	D	K/A	E
23.	C	K/A	M
24.	C	K/A	E
25.	A	K/A	M
26.	C	K/A	E
27.	A	K/A	E
28.	B	K/A	E
29.	B	K/A	E
30.	B	K/A	E
31.	C	K/A	E
32.	B	K/A	E
33.	C	K/A	E
34.	A	K/A	E
35.	A	K/A	E
36.	A	K/A	M
37.	C	K/A	M
38.	B	K/A	M
39.	D	K/A	E
40.	B	K/A	M
41.	B	K/A	M
42.	A	K/A	E
43.	B	K/A	M
44.	.	K/A	E
45.	A	K/A	M
46.	B	K/A	E
47.	A	K/A	E
48.	C	K/A	M

19. The multiple inverse of a − b is:
   a) −a + b b) a + b c) $\dfrac{1}{a-b}$ d) $\dfrac{1}{a+b}$

20. If $x = 2 + \sqrt{5}$ then x^2 is:
   a) 9 b) $2\sqrt{5}$ c) $9 + 4\sqrt{5}$ d) none of these

21. $8^{\frac{1}{3}} \times 36^{\frac{1}{2}} = ?$
   a) 8 b) 36 c) 12 d) 24

22. (−5, −3) is in quadrant:
   a) 1st b) 2nd c) 3rd d) 4th

23. The Cartesian product of set A and B is written as:
   b) AΔB b) A − B c) A × B d) B × A

24. $\sqrt[n]{x} = y$ then value of x is:
   a) $(x)^n$ b) $(y)^n$ c) $(y)^{\frac{1}{n}}$ d) $(y)^2$

25. {2, 3, 5, 7, ...} is the set of:
   c) $\mathbb{P}$ b) c) $\mathbb{N}$ d) ⇨

26. $\dfrac{a}{\sqrt{a}}..$
   a) a b) $\dfrac{1}{\sqrt{a}}$ c) $\sqrt{a}$ d) a^2

27. $4 \times 5^0 = ...$
   a) 4 b) 5 c) 20 d) 0

28. $\sqrt[5]{43}$, 5 is called:
   a) index b) radicand c) exponent d) none of these

29. $(\sqrt{x} + \sqrt{y})(\sqrt{x} - \sqrt{y}) =$
   a) $x + y$ b) $x - y$ c) $\sqrt{x} + \sqrt{y}$ d) $\sqrt{x} - \sqrt{y}$

30. $\left[-1(-1)^5\right]^0 = ...$
   a) 0 b) 1 c) −1 d) 2

31. An equilateral triangle each angle has:
   a) 30º b) 45º c) 60º d) 90º

32. The set of first three prime numbers is:
   a) {1, 2, 3} b) {2, 3, 5} c) {1, 3, 5} d) {2, 3, 7}

33. If $\sqrt{x} = 9$ then $x = ...$
   a) 3 b) ±3 c) 81 d) $\dfrac{1}{2}$

34. A set which contains all the set under consideration is called:
   a) universal set b) null set c) sub set d) none of these

35. A set A = {2, 3, 5, 7, 11, ...} is closed with respect to:
   b) addition b) multiplication c) division d) none of these

36. $\mathbb{R}$ = {(2, −3), (2, 6), (2, 3)} the range of $\mathbb{R}$ is:
   a) {3, 6} b) {2} c) {2, 3} d) none of these

37. $3^0 = ...$
   a) 3 b) 2 c) 1 d) 0

38. $(A')' = ...$
   a) A' b) A c) U d) none of these

39. The ordered pair (0, 2) lies:
   a) 1st quadrant b) 2nd quadrant c) on x-axis d) on y-axis

40. $(64)^{-\frac{1}{6}} = ...$
   a) 2 b) $\dfrac{1}{2}$ c) $\dfrac{1}{4}$ d) 1

41. $(5^3)^2 \div (5^2)^3 = ...$
   a) 0 b) 1 c) 5 d) none of these

42. $x^3 + y^3 = ...$
   a) $(x + y)(x^2 - xy + y^2)$ b) $(x - y)(x^2 + xy + y^2)$ c) $(x + y)(x^2 + xy + y^2)$ d) none of these

43. $\sqrt{2}$ is an a/an_____ number.
   a) rational b) irrational c) prime d) composite

44. $\sqrt{a} \ \sqrt{a} = ...$
   a) 1 b) 0 c) $\sqrt{a}$ d) $2\sqrt{a}$

45. $Q \cup Q' = $_____ where Q is Rational number and Q' is Irrational number.
   a) real number b) universal set c) prime numbers d) composite number

46. According to De-Morgan's law $(A \cup B)'$ is equal to:
   b) $A' \cup B'$ b) $A' \cap B'$ c) A∩B d) A∪B

47. If A = {a} then P(A) has_____elements.
   a) 2 b) 4 c) 6 d) 8

48. If A = {1, 2, 3, 4} then P(A) has_____elements.
   a) 4 b) 8 c) 16 d) 32

49.	Set of Rational numbers is denoted by:				**49.**	**B**	**K/A**	**E**

49. Set of Rational numbers is denoted by:
   a) $\mathbb{P}$ b) $\mathbb{R}$ c) $\mathbb{Q}$ d) ≎

50. If $(x + 2, 3y − 6) = (2x, y)$ then $x = $ _____
   a) 4   b) 6   c) 2   d) none of these

51. Set of first three Prime Numbers:
   a) {1, 2, 3}   b) {2, 3, 5}   c) {1, 3, 5}   d) {2, 3, 7}

52. As per De-Morgan's law $(A \cup B)'$ is equal to:
   a) $A' \cup B$ b) $A' \cap B'$ c) $A' − B'$ d) none of these

53. If A and B are sets and A∪B = A∩B then:
   a) A = B   b) A = $\emptyset$ c) B = $\emptyset$ d) none of these

54. Which of the following is null set:
   a) { }   b) $\emptyset$ c) both (a) and (b)   d) {0}

55. is a / an_____number.
   a) Rational number   b) Irrational number   c) Real number   d) both (b) and (c)

56. $3\sqrt{6} + 4\sqrt{6}$ is equal to:
   a) $12\sqrt{6}$ b) $7\sqrt{6}$ c) $36\sqrt{6}$ d) none of these

57. $a^m \div a^n$ is:
   a) a^{m+n} b) a^{m-n} c) $a^{m/n}$ d) a^{n-m}

58. $ab = ba$ is:
   a) associative property   b) distributive property   c) commutative property   d) none of these

59. If $\log_a 16 = 4$ then $a = $ _____
   a) 1/2   b) 2   c) 3   d) 4

60. Base of common logarithm is _____
   b) 0   b) e c) 10   d) none of these

61. L.C.M of $x^3 − y^3$ and $x^6 − y^6 = $ _____
   a) $x^3 − y^3$ b) $x^3 + y^3$ c) $x^6 + y^6$ d) $x^6 − y^6$

62. $x^4 + 64$ can by made a perfect square by adding:
   c) $4x^2$ b) $16x^2$ c) $8x^2$ d) none of these

63. L.C.M of $9x^2$ and $15x$ is:
   d) $24x^2$ b) $45x^2$ c) $135x^2$ d) $135x^3$

64. $(64)^{-\frac{3}{6}} = $ _____
   a) 1   b) 2   c) 1/2   d) 1/4

65. $5^{3^2} \div 5^{2^3} = $ _____
   a) 1   b) 3   c) 4   d) 5

66. $4 \times 5^0 = $ _____
   a) 0   b) 4   c) 5   d) 20

67. $\sqrt[3]{35}$ is radicand:
   a) 35   b) 3   c) 1/3   d) 1/35

68. $100° + 20° + 40° = $ _____
   a) 0   b) 1   c) 2   d) 3

69. $\sqrt{x} = 9$ then $x = $ _____
   a) +3   b) ±3   c) 81   d) 1/2

70. Cube of 3 is:
   a) $\sqrt{3}$ b) 9   c) 27   d) 81

71. $\sqrt{75} = $ _____
   a) $25\sqrt{3}$ b) $5\sqrt{3}$ c) $3\sqrt{5}$ d) $3\sqrt{25}$

72. $a^{-11}/a^{-3} = $ _____
   a) a^8 b) a^9 c) a^{-8} d) a^{-33}

73. Symmetrical difference between A and B is:
   a) $A − B$ b) $B − A$ c) $A \times B$ d) $A \Delta B$

74. $R = \{(1, 2), (2, 3), (3, 4)\}$, Domain of R:
   a) {1, 2, 3}   b) {2, 3, 4}   c) {1, 2, 3, 4}   d) none of these

75. Number of subsets of se can be find by formula:
   a) 2^n b) $2n$ c) $2n^2$ d) $2n^3$

76. Order pair (−3, 4) belongs to:
   b) first quadrant   b) second quadrant   c) third quadrant   d) fourth quadrant

77. {2, 3, 5, 7, ………} belong to:
   a) odd number   b) even number   c) natural number   d) prime number

78. Set of all sub sets of a set is called:
   a) proper subset   b) improper subset   c) power subset   d) none of these

Q.	Ans		
49.	B	K/A	E
50.	D	K/A	D
51.	B	K/A	M
52.	B	K/A	E
53.	A	K/A	M
54.	C	K/A	E
55.	.	K/A	D
56.	B	K/A	M
57.	B	K/A	M
58.	C	K/A	D
59.	A	K/A	M
60.	C	K/A	D
61.	D	K/A	D
62.	B	K/A	M
63.	B	K/A	E
64.	C	K/A	E
65.	A	K/A	M
66.	B	K/A	M
67.	B	K/A	E
68.	D	K/A	E
69.	C	K/A	D
70.	C	K/A	M
71.	B	K/A	M
72.	C	K/A	E
73.	D	K/A	M
74.	A	K/A	E
75.	A	K/A	M
76.	B	K/A	E
77.	D	K/A	M
78.	C	K/A	E

79. $\sqrt[y]{x}$, y is called of the root: a) Radicand b) Quantity c) Index d) None of these	79. A	K/A	M
80. If $X = \{2, 3, 5, 7, 11\}$, then all the numbers in X are: b) Prime number b) Natural number c) Odd number d) Even number	80. A	K/A	E
3. $(\frac{1}{2})^{-3} =$ a) 8 b) 1/8 c) 6 d) 1/6	81. C	K/A	M
81. $(\sqrt{2} + 1)(\sqrt{2} - 1) =$ a) 2 b) 0 c) 1 d) $\sqrt{2}$	82. C	K/A	E
82. The additive inverse of $a - b$ is: a) $a + b$ b) $a - b$ c) $\frac{1}{a-b}$ d) $\frac{1}{a+b}$	83. B	K/A	M
83. $8^{1/3} \times 36^{1/2} =$: a) 8 b) 12 c) 16 d) None of these	84. C	K/A	E
84. $x^4 + 64$ can be make a perfect square by adding: a) $4x^2$ b) $8x^2$ c) $16x^2$ d) $2x^2$	85. C	K/A	E
85. $\frac{a}{\sqrt{a}} =$: a) A b) ½ c) $\sqrt{a}$ d) 1			