ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

RESOURCES FOR

"SSC-IIMATHEMATICS"

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:

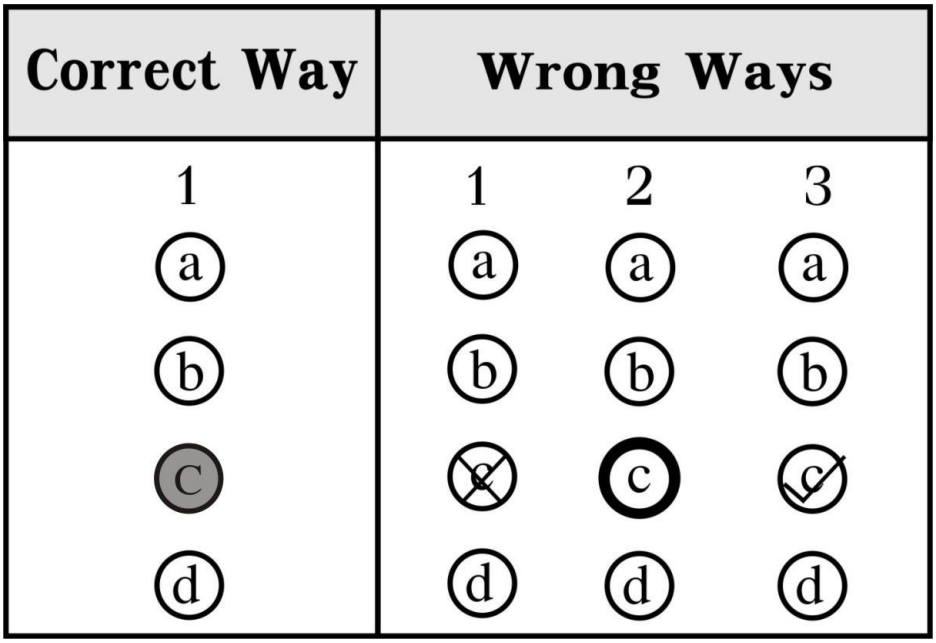
1: Multiple Choice Questions:

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.	$A\Delta B=$_____ *a.* $A\cap B$ *b.* $A\cup B$ c. $(A\cap B)-(A\cup B)$ d. $(A\cup B)-(A\cap B)$	**d**	**K/A**	**M**
2.	Theset offirst threeprime numbers is: a) {2,3, 5} **b)** {1, 2, 3} **c)** {1,3,5} **d)** {1, 2, 7}	**a**	**K/A**	**E**
3.	If *x*,*y*,*z*arereal number and *x*=*y*, *y*=*z*then *x*=*z*,thepropertyusediscalled _____ **a.** Transitive **b.** Trichotomy **c.** Symmetric **d.** Identity	**a**	**K/A**	**E**

4.	$5^{3^2} \div 5^{2^3}$ = _____ **a.** 0 **b.** 1 **c.** 5 **d.** 25	**b**	**K/A**	**E**
5.	Thecharacteristics of log 0.00396 is_____ **(a)** 3 **(b)** 3 **(c)** 2 **(d)** 4	**b**	**K/A**	**D**
6.	If $\log_2$ x = 3 then x will be equal to: **a.** 6 **b.** 1.5 **c.** 10 **d.** 5	**b**	**K/A**	**M**
7.	Thenaturallogarithmhasthebase_____. **a.** π **b.** e **c.** 10 **d.**)0	**c**	**K/A**	**D**
8.	(7 - $\sqrt{2}$) (7 + $\sqrt{2}$) = _____ **a.** 47 **b.** 1 **c.** 5 **d.** 48	**a**	**K/A**	**M**
9.	Thedegreeofpolynomial$8x^2y^3-5x^2y^5-x^3y^7$is_____. **a.** 5 **b.** 7 **c.** 3 **d.** 9	**a**	**K/A**	**M**
10.	Thesquarerootof$(a-b)^2$*is* a. $\pm(a-b)$ b. $\pm(a-b)(a+b)$ c. $\pm(a+b)$ **d.** noneofthese	**a**	**K/A**	**M**
11.	TheL.C.Mof x^3-y^3andx^6-y^6is_ a) x^3-y^3 b) x^3+y^3 **c)** x^6+y^6 **d)** x^6-y^6	**a**	**K/A**	**E**
12.	$ax^2+bx+c=0$,willremainquadraticequation,if a. $a\neq0$ andb =c=0 b. $a=0$ andb$\neq0$,$c\neq0$ c. $a\neq0$and$c=0$ **d.** Both(a)and(c)	**d**	**K/A**	**E**
13.	Thesolutionsetof $2x+2=-3$is a. {}	**a**	**K/A**	**E**

	b. {3} c. {3,-3} **d.** {2, -2}			
14.	If $\begin{bmatrix}2 & 3\\4 & p\end{bmatrix}$ is a singularmatrix, then p =_____ **a.** 2 **b.** 3 **c.** 4 **d.** 6	**d**	**K/A**	**E**
15.	IfA=$\begin{bmatrix}2 & -3\\4 & 5\end{bmatrix}$ $and\ B = \begin{bmatrix}9 & 4\\-2 & 7\end{bmatrix}$ A+B =_____ **a.** $\begin{bmatrix}2 & -3\\4 & 5\end{bmatrix}$ **b.** $\begin{bmatrix}9 & 4\\-2 & 7\end{bmatrix}$ **c.** $\begin{bmatrix}11 & 1\\2 & 12\end{bmatrix}$ **d.** $\begin{bmatrix}7 & -7\\-6 & 12\end{bmatrix}$	**c**	**K/A**	**E**
16.	Eliminate"b"from a+3b = -1 , a+b =3, then new relation is **a.** a=5 **b.** **b=5** **c.** **b=0** **d.** **a=3**	**a**	**K/A**	**D**
17.	Themeasureof eachangle ofan equilateraltriangle is_____ **a.** 90^o **b.** 45^o **c.** 30^o **d.** 60^o	**d**	**K/A**	**M**
18.	Thecomplement of40^ois_____. a. 60^o b. 140^o c. 90^o d. 50^o	**d**	**K/A**	**M**
19.	Thedistanceofanypoint of acircle from its centreis called its a. Chord b. Diameter c. Tangent d. Radius	**d**	**K/A**	**M**
20.	Sinθ.Secθ=_____. a. Tanθ b. Cosθ c. Cotθ d. Cosecθ	**a**	**K/A**	**M**

21.	$1+\tan^2\theta=$ a. $Sec^2\theta$ b. $Cot^2\theta$ **c.** $Sin^2\theta$ **d.** $\tan^2\theta$	**a**	**K/A**	**E**
22.	Atrianglehavingnoside congruentiscalled _____triangle. **a.** Isosceles **b.** Scalene **c.** Acute **d.** Right	**b**	**K/A**	**E**
23.	$Sin30^o=$ *a.* $Sin60^o$ *b.* $Cos60^o$ **c.** $Cos30^o$ **d.** $Sin30^o$	**b**	**K/A**	**E**
24.	Theangle inscribedin a majorarcis_____angle. **a.** Acute **b.** 180^o **c.** Right **d.** Acute	**a**	**K/A**	**E**
	25. **(–5, –3) is in quadrant:** a) 1^{st} b) 2^{nd} c) 3^{rd} d) 4^{th} ***26.*** **$\log_7 x = 2$ then x is:** a) 14 b) 49 c) 64 d) 128 ***27.*** **The Cartesian product of set A and B is written as:** a) AΔB b) A – B c) A × B d) B × A ***28.*** **$\log_x 81 = 4$ Then x is:** a) 3 b) 4 c) 9 d) 16 ***29.*** **$\sqrt[n]{x} = y$ then value of x is:** a) $(x)^n$ b) $(y)^n$ c) $(y)^{\frac{1}{n}}$ d) $(y)^2$ ***30.*** **The nature logarithm has the base:** a) π b) e c) 10 d) none of these ***31.*** **{2, 3, 5, 7, ……} is the set of:** a) ℙ b) c) ℕ d) ⇨ ***32.*** $\frac{a}{\sqrt{a}}$ = ... a) a b) $\frac{1}{\sqrt{a}}$ c) $\sqrt{a}$ d) a^2 ***33.*** **4×5^0 = ……** a) 4 b) 5 c) 20 d) 0 ***34.*** **$\sqrt[5]{43}$, 5 is called:** a) index b) radicand c) exponent d) none of these ***35.*** $(\sqrt{x}+\sqrt{y})(\sqrt{x}-\sqrt{y})=$ a) $x+y$ b) $x-y$ c) $\sqrt{x}+\sqrt{y}$ d) $\sqrt{x}-\sqrt{y}$	**25. D** **26. B** **27. C** **28. A** **29. C** **30. C** **31. A** **32. C** **33. A** **34. B** **35. B**	**K/A** **K/A** **K/A** **K/A** **K/A** **K/A** **K/A** **K/A** **K/A** **K/A** **K/A**	**E** **M** **M** **M** **M** **E** **M** **E** **E** **E**

36. $\left[-1(-1)^5\right]^0$ = ...

a) 0 b) 1 c) –1 d) 2

37. **cos 45° = ...**

a) $\sqrt{2}$ b) $\frac{1}{\sqrt{2}}$ c) $\frac{1}{2}$ d) $\frac{\sqrt{3}}{2}$

38. **An equilateral triangle each angle has:**

a) 30° b) 45° c) 60° d) 90°

39. **The reciprocal of cotθ is:**

a) $\frac{1}{\cos\theta}$ b) tanθ c) $\frac{1}{\tan\theta}$ d) none of these

40. **The set of first three prime numbers is:**

a) {1, 2, 3} b) {2, 3, 5} c) {1, 3, 5} d) {2, 3, 7}

41. **If $\sqrt{x} = 9$ then x = ...**

a) 3 b) ±3 c) 81 d) $\frac{1}{2}$

42. **A set which contains all the set under consideration is called:**

b) universal set b) null set c) sub set d) none of these

43. **A set A = {2, 3, 5, 7, 11, ...} is closed with respect to:**

c) addition b) multiplication c) division d) none of these

44. **Cosec (90 – 30) = Sec .....**

a) 30° b) 45° c) 60° d) 90°

45. **A triangle having no side congruent is called:**

a) right b) obtuse c) isosceles d) scalene

46. **$\mathbb{R}$ = {(2, –3), (2, 6), (2, 3)} the range of $\mathbb{R}$ is:**

a) {3, 6} b) {2} c) {2, 3} d) none of these

47. **Logarithmic form of $2^5 = 32$ is:**

a) $\log_{32} 5 = 2$ b) $\log_2 32 = 5$ c) $\log_5 32 = 2$ d) none of these

48. **Cos 10° = ...**

a) Cosec 10° b) Cot 10° c) Sin 80 d) none of these

49. **3° = ...**

a) 3 b) 2 c) 1 d) 0

50. **$\sqrt{1-\sin^2\theta}$ = _____**

a) cosθ b) tanθ c) secθ d) sinθ

51. **Tan 60° = _____**

a) $\frac{1}{\sqrt{3}}$ b) $\sqrt{3}$ c) 3 d) 1

52. **Cos 20° = _____**

a) cosec 70° b) tan 70° c) sin 70° d) sin 20°

53. **The value of $\text{Sin}^2 30 + \text{Cos}^2 30$ = _____**

b) 1 b) 0 c) $\sqrt{3}/2$ d) $1/\sqrt{2}$

54. **Sin 30° × Cosec 30 = _____**

c) 1 b) 0 c) $\sqrt{3}/2$ d) $1/\sqrt{2}$

55. **Determinant of matrix is zero called:**

d) unit matrix b) zero matrix c) identify d) singular

36.	B	K/A	E
37.	B	K/A	E
38.	C	K/A	M
39.	B	K/A	E
40.	B	K/A	E
41.	C	K/A	M
42.	B	K/A	E
43.	A	K/A	E
44.	A	K/A	E
45.	D	K/A	E
46.	A	K/A	E
47.	B	K/A	M
48.	C	K/A	M
49.	C	K/A	M
50.	A	K/A	E
51.	B	K/A	E
52.	C	K/A	M
53.	A	K/A	E
54.	A	K/A	E
55.	D	K/A	E

56. **Order of** $\begin{bmatrix} a \\ b \end{bmatrix}$ **is:**

a) 3×1 b) 1×2 c) 2×1 d) 2×2

57. $\begin{bmatrix} a \\ b \end{bmatrix}$ **is called:**

e) row matrix b) column matrix c) identify d) null

58. **If** $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$**, then** $ad - bc$ **is called:**

f) entities b) elements c) determinant d) adjoint

59. $(A^t)^t =$ _____

a) A^t b) A c) A^{-1} d) none of these

60. **If** $\log_a 16 = 4$ **then** $a =$ _____

a) 1/2 b) 2 c) 3 d) 4

61. **Base of common logarithm is** _____

a) 0 b) e c) 10 d) none of these

62. **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) $x^6 - y^6$

63. $x^4 + 64$ **can by made a perfect square by adding:**

b) $4x^2$ b) $16x^2$ c) $8x^2$ d) none of these

64. **L.C.M of** $9x^2$ **and** $15x$ **is:**

a) $24x^2$ b) $45x^2$ c) $135x^2$ d) $135x^3$

65. $(64)^{-1/6} =$ _____

a) 1 b) 2 c) 1/2 d) 1/4

66. $5^{3^2} \div 5^{2^3} =$ _____

a) 1 b) 3 c) 4 d) 5

67. $4 \times 5^0 =$ _____

a) 0 b) 4 c) 5 d) 20

68. $\sqrt[3]{35}$ **is radicand:**

a) 35 b) 3 c) 1/3 d) 1/35

69. $100^o + 20^o + 40^o =$ _____

a) 0 b) 1 c) 2 d) 3

70. $\sqrt{x} = 9$ **then** $x =$ _____

a) +3 b) ±3 c) 81 d) 1/2

71. **Cube of 3 is:**

a) $\sqrt{3}$ b) 9 c) 27 d) 81

72. $\sqrt{75} =$ _____

a) $25\sqrt{3}$ b) $5\sqrt{3}$ c) $3\sqrt{5}$ d) $3\sqrt{25}$

73. $a^{-11} \big/ a^{-3} =$ _____

a) a^8 b) a^9 c) a^{-8} d) a^{-33}

74. **Symmetrical difference between** A **and** B **is:**

a) $A - B$ b) $B - A$ c) $A \times B$ d) $A \Delta B$

75. $R = \{(1, 2), (2, 3), (3, 4)\}$**, Domain of** R**:**

a) {1, 2, 3} b) {2, 3, 4} c) {1, 2, 3, 4} d) none of these

76. **Number of subsets of se can be find by formula:**

a) 2^n b) $2n$ c) $2n^2$ d) $2n^3$

56.	C	K/A	M	
57.	B	K/A	E	
58.	C	K/A	M	
59.	B	K/A	E	
60.	C	K/A	M	
61.	C	K/A	M	
62.	C	K/A	M	
63.	B	K/A	E	
64.	B	K/A	M	
65.	C	K/A	M	
66.	A	K/A	E	
67.	B	K/A	E	
68.	B	K/A	E	
69.	D	K/A	E	
70.	C	K/A	M	
71.	C	K/A	M	
72.	B	K/A	E	
73.	C	K/A	M	
74.	D	K/A	E	
75.	A	K/A	E	
76.	A	K/A	E	

77. **Order pair (–3, 4) belongs to:**

b) first quadrant b) second quadrant c) third quadrant d) fourth quadrant

78. **{2, 3, 5, 7, ……} belong to:**

a) odd number b) even number c) natural number d) prime number

79. **Set of all sub sets of a set is called:**

a) proper subset b) improper subset c) power subset d) none of these

80. **If $(x^3 + 4x^2 - 7x + 3) \div (x - 1)$ then the remainder is**

a) 10 b) 90 c) 2 d) 100

81. **The solution set of $3x^2 - 10x = 0$ is**

a) {10} b) {10/3} c) {0} d) {0, 10/3}

82. **If $\log_7 x = 2$ then x is:**

a) 14 b) 128 c) 49 d) 64

83. **If $x + y = 5$ and $x - y = 5$ then $4xy =$**

a) 10 b) 25 c) 0 d) 5

84. **HCF of $a^3 + b^3$ and $a^2 - ab + b^2$ is**

b) a + b b) a – b c) $a^2 - ab + b$ d) $a^2 + b^2$

85. **The sum of two complementary angles is:**

a) 180 b) 45 c) 90 d) 360

86. **If $|A| = 0$ then matrix is called:**

c) Singular b) Non- Singular c) Square d) None of them

87. **The sum of two supplementary angle is:**

a) 180° b) 45° c) 90° d) 360°

88. **The distance of any point of a circle to its centre called:**

d) Radius b) Diameter c) Chord d) Tangent

89. **If a + b = 2 and a – b = 2 then value of $a^2 - b^2$ is:**

e) 8 b) 6 c) 4 d) None of them

90. **The characteristic of log 0.0026 is:**

a) 3 b) 1 c) $\bar{3}$ d) $\bar{2}$

91. **tan 60° =**

f) $\frac{1}{\sqrt{3}}$ b) $\sqrt{3}$ c) 1 d) $\frac{1}{2}$

92. $1 + tan^2\theta =$

a) $sik^2\theta$ b) $cos^2\theta$ c) $sec^2\theta$ d) $cosec^2\theta$

93. **The sum of angles of triangle is:**

a) 360° b) 90° c) 180° d) 270°

77.	B	K/A	E
78.	D	K/A	E
79.	C	K/A	M
80.	C	K/A	M
81.	C	K/A	M
82.	C	K/A	M
83.	C	K/A	M
84.	C	K/A	M
85.	C	K/A	M
86.	A	K/A	E
87.	A	K/A	M
88.	A	K/A	M
89.	C	K/A	M
90.	C	K/A	M
91.	C	K/A	M
92.	C	K/A	M
93.	B	K/A	M

		94. D	K/A	M
		95. B	K/A	M
		96. C	K/A	M
		97. D	K/A	E
		98. A	K/A	E
		99. A	K/A	E
		100. B	K/A	M

94. **L.C.M of** $9x^2$ *and* $15x$ **is:**

a) $24x^2$ b) $135x^3$ c) $135x^2$ d) $45x^2$

95. **The degree of given polynomial** $\sqrt[3]{(a^2-b^2)^3}$ **is:**

a) 3 b) 2 c) 1 d) 5

96. **The solution set of** $|y-3| = -4$ **is:**

a) $\{-, 2\}$ b) $\{-, -2\}$ c) $\{\}$ d) $\{1, 3\}$

97. $\sqrt{1-Sin^2\theta} =$

a) $sin\theta$ b) $cos^2\theta$ c) $sik^2\theta$ d) $cos\theta$

98. **The square root of** $(a-b)^2$ **is:**

a) $\pm(a-b)$ b) $(a-b)(a-b)$ c) $\pm(a+b)$ d) None of them

99. **If x = 1 and y = 1 then value of x – y + xy will be:**

a) 1 b) 0 c) 2 d) –1

100. $x^2 + 64$ **will be perfect square by adding:**

a) 16 b) $16x^4$ c) $16x^2$ d) 8