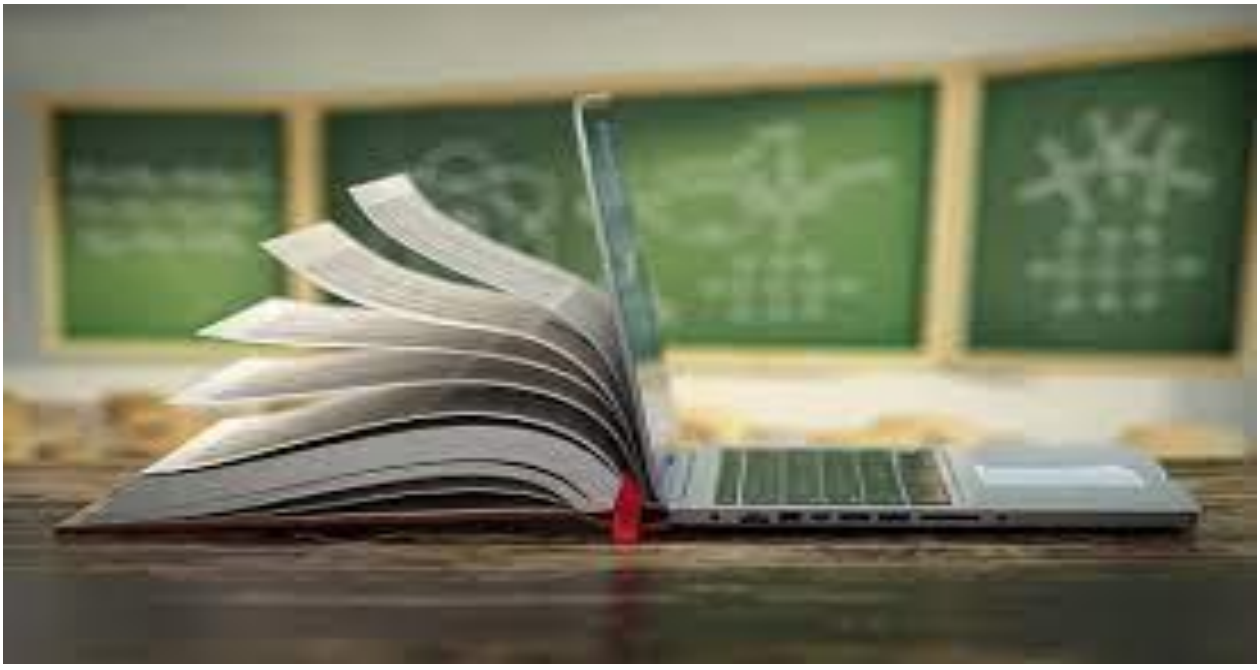
ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

RESOURCES FOR

"SSC-IIGEN. MATHEMATICS"

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. Extended Response Questions (ERQs)

HOW TO ATTEMPT ERQs:

- Write the answer to each Constructed Response Question/ERQs in the space given below it.
- Use black pen/pencil to write the responses. Do not use glue or pin on the paper.

SECTION C (LONG ANSWER QUESTIONS)

1. WritesomeapplicationsofROBOT?

.

.

.

S.NO	ERQ	ANSWER	CL	DL
1.	**A man left behind him an inheritance (Tarka) worth Rs 30,000. Distribute the tarka among his four sons and three daughters such that each son gets twice as much as a daughter. The deceased dies leaving behind him a debt of Rs 8000**	Each son: Rs. 4000 Each daughter: Rs. 2000		
2.	**Find the solution set of the equations:** **x+y= 4, 2x –y = 5**	$\{(3,1)\}$		
3.	**Draw a circle of 4cm radius. Take a point P at a distance of 6cm from its center and draw two tangents to the circle from the point P. Write steps of construction**			
4.	**8 masons can build a 10 meters long wall in 22 days. How many masons would be required to build a 165 meters long wall in 6 days?**			
5.	Solve the following, then convert into Decimal System, multiply and thus check your answer. (i) $243_5 \times 2_5$ (ii) $342_5 \times 43_5$	1. 14230_5 2. 32411_5		
6.	**Solve the following with the help of logarithms:** **(i)** $\mathbf{4.578 \times 62.16}$ **(ii)** $\mathbf{3.97 \times 1.45 \times 7.89}$	(i) 284.5 (ii) 45.42		
7.	**A person died leaving behind him 4 daughters, 6 sons and a widow. Wife got $\frac{1}{8}$ of the property and each son got twice of what each daughter got. What will be the share of each one out of 'Tarka' of $20,000$ rupees when a debt of $4,000$ rupees is also due on the deceased.**	Widow: Rs. 2000 Son: Rs. 1750 Daughter: Rs. 875		
8.	Jamal Khan purchased the following things and was allowed discount at different rates. How much did he pay in total: (i) Books of 550 rupees at 20% discoun. (ii) Note books of Rs. 250 at 15% discount. (iii) Pens of 120 rupees at 10% discount.	Rs. 760,50		

9.	**For what value of q is the expression $5x^3 - 14x + q$ exactly divisible by $x - 2$.**	$q = -12$		
10	**Factorize:** **(i)** $x^3 + 3x^2y + 3xy^2 + y^3$ **(ii)** $x^3 + 3x + \frac{3}{x} + \frac{1}{x^3}$	(i) $(x+y)^3$ (ii) $\left(x + \frac{1}{x}\right)^3$		
11	**If $A = \begin{bmatrix} -1 & 0 \\ 2 & 5 \end{bmatrix}, B = \begin{bmatrix} 2 & -1 \\ 0 & 3 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, find the following matrices:** **(i)** $A + B$ **(ii)** $C + B$ **(iii)** $A + C$ **(iv)** $B + B$ **(v)** $-C$ **(vi)** $C - C$ **(vii)** $B - A$ **(viii)** $2A + 3B$ **(ix)** Is $A + B = B + A$ and $C + A = A + C$?	(i) $\begin{bmatrix} 1 & -1 \\ 2 & 8 \end{bmatrix}$ (ii) $\begin{bmatrix} 3 & -1 \\ 0 & 4 \end{bmatrix}$ (iii) $\begin{bmatrix} 0 & 0 \\ 2 & 6 \end{bmatrix}$ (iv) $\begin{bmatrix} 4 & -2 \\ 0 & 6 \end{bmatrix}$ (v) $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$ (vi) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ (vii) $\begin{bmatrix} 3 & -1 \\ -2 & -2 \end{bmatrix}$ (viii) $\begin{bmatrix} 4 & -3 \\ 4 & 19 \end{bmatrix}$ (ix) Yes.		
12	**A line l intersects two lines p, q in points A, B and makes 8 angles. Look at the figure and name the following pairs of angles.** **(i)** **Interior alternate angles.** **(ii)** **Exterior alternate angles.** **(iii)** **Corresponding angles.** **(iv)** **A pair of adjacent supplementary angles.** **(v)** **A pair of vertical angles.**	(i) $(< 3, < 5), (< 4, < 6)$ (ii) $(< 1, < 7), (< 2, < 8)$ (iii) $(< 2, < 6), (< 3, < 7)$ $(< 1, < 5), (< 4, < 8)$		
13	**In a triangle ABC, $< C$ is a right angle. In parts (i) to (iv) find the length of the remaining side** **(i)** $AC = 6cm, BC = 8cm.$ **(ii)** $BC = 24, AB = 25.$ **(iii)** $AC = 9cm, AB = 41cm$ **(iv)** **AB=10cm, BC=9cm.**	(i) 10 cm (ii) 97 units (iii) 940 cm (iv) $\sqrt{19}$ cm.		