PIONEER INTERNATIONAL UNIVERSITY

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UNIVERSITY EXAMINATIONS

ACADEMIC YEAR: 2021/2022   **SEMESTER:** SEP-DEC

UNIT CODE: BAIR 3340   **UNIT NAME:** SOUTH- SOUTH RELATIONS

DATE: DEC 2021   **TIME:** 2 HOURS

IMPORTANT NOTICE !!!!!!!!!!!!

The following are the possible consequences if found guilty of an Examination Offence:
a) Expulsion from the University.
b) Academic Leave.

SECTION A: COMPULSORY (30 Marks)

QUESTION ONE

a) Explain five factors that have contributed to south-south and triangular cooperation in the contemporary world?   **(10 Marks)**

b) Regional trade is among the factors that have contributed to the solidification of South-South relations. How has regional trade agreements contributed to south-south cooperation?   **(10 Marks)**

c) In the current decade, China has made significant inroads in the Sub-Saharan Africa. With relevant examples, critically explain China's interests in the Sub-Saharan region.   **(10 Marks)**

SECTION B: CHOOSE ONE QUESTION (20 Marks)

QUESTION TWO:

a) What is the contribution of South-South relations with regard to natural resource governance in Africa?   **(10 Marks)**

b) Critically examine the role of intergovernmental organizations in advancing cooperation among developing countries.   **(10 Marks)**

QUESTION THREE:

Evaluate the China's *Go Out Policy* in relation to China-Africa cooperation.   **(20 Marks)**

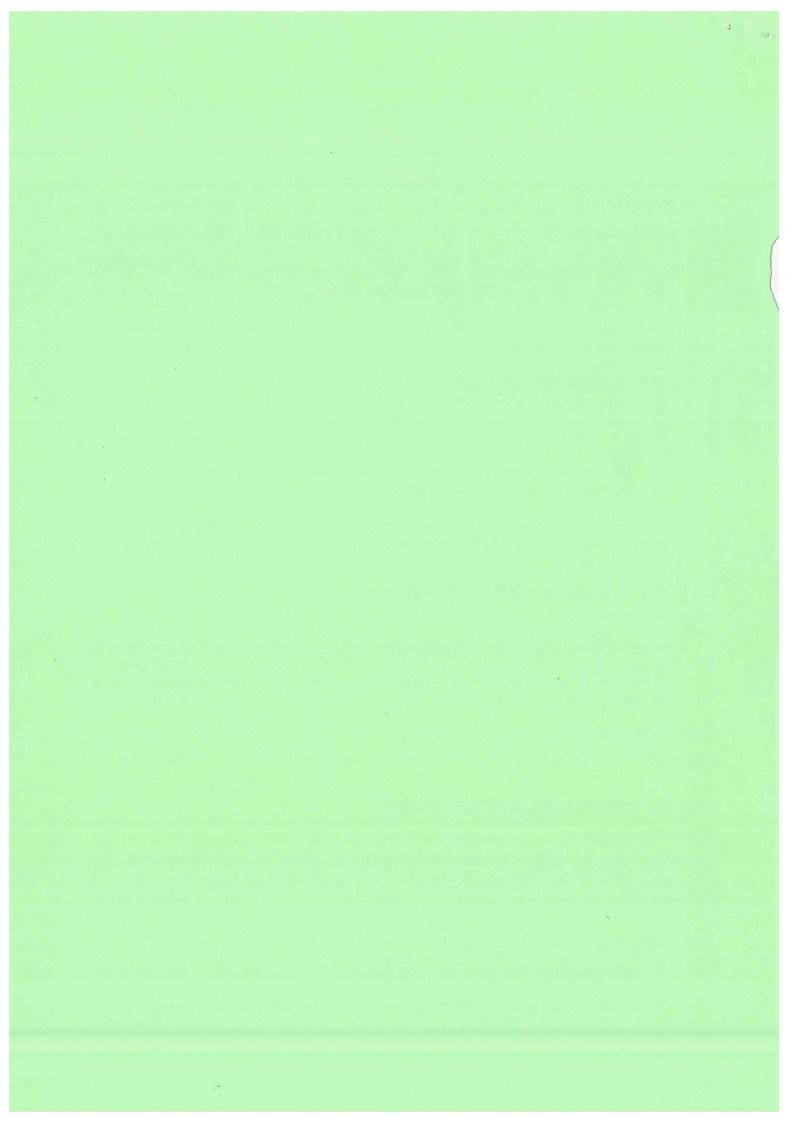## SECTION C: CHOOSE ONE QUESTION (20 Marks)

QUESTION FOUR:

With relevant examples explain the principles of South-South cooperation as reaffirmed in the Ministerial Declaration of the 33rd Annual meeting of Ministers of Foreign Affairs of the Group 77 and China, in September 2009.   **(20 Marks)**

QUESTION FIVE:

a) Explain the contribution of the UN to boosting South-South Cooperation.   **(10 Marks)**

b) Critically analyze factors that hinder technical cooperation among developing countries.
                                                    (10 Marks)

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ACADEMIC YEAR: 2021/2022   **SEMESTER:** SEPTEMBER-DECEMBER 2021

UNIT CODE: MATH 3110   **UNIT NAME:** LINEAR ALGEBRA 1

DATE: DECEMBER 2021   **TIME:** 2 HOURS

INSTRUCTIONS TO CANDIDATES:

Answer question **ONE** and any other **TWO** Questions

1. (a) Find the determinant of the matrix $A = \begin{pmatrix} 2 & 3 & 4 \\ 5 & 6 & 7 \\ 8 & 9 & 1 \end{pmatrix}$

(**4 marks**)

(b) Giving examples, briefly explain the following types of special matrices.
   i. Lower triangular matrix
   ii. Scalar matrix

(**4 marks**)

(c) Let $A = \begin{pmatrix} 3 & 1 \\ 4 & -5 \end{pmatrix}$ and $B = \begin{pmatrix} 3 & 2 \\ -5 & 7 \end{pmatrix}$. Find 3A+5B

(**4 marks**)

(d) Find the values of w, x, y, z, given that
$A = \begin{pmatrix} w + x & y + z \\ y - z & w - x \end{pmatrix}$, $B = \begin{pmatrix} 2 & 4 \\ -4 & 2 \end{pmatrix}$ and $A = B$

(**6 marks**)

(e) Solve the simultaneous equations below using Cramer's Rule.
$$4x - 3y = 11$$
$$6x + 5y = 7$$

(**7 marks**)

(f) Let $A = \begin{bmatrix} 3 & 2 \\ 5 & -1 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 4 \\ 6 & 3 \end{bmatrix}$, Show that $(AB)^T = B^T A^T$ (**5 marks**)

2. Solve the following system by Gaussian elimination

(a)

$$x - 3y - 2z = 6$$
$$2x - 4y - 3z = 8$$
$$-3x + 6y + 8z = -5$$

(**10 marks**)

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(b) David buys 2 DVDs and 2 CDs in a shop and in total they cost Ksh.180. Ellie buys 3 DVDs and 2 CDs in the same shop and they cost Ksh.220.
Using the matrix method, find the cost of each DVD and each CD.

(**10** *marks*)

3. Let $A = \begin{bmatrix} 2 & -12 \\ 1 & -5 \end{bmatrix}$.

(a) Write the characteristic polynomial of A. (**3** *marks*)

(b) Write the characteristic equation of A. (**3** *marks*)

(c) Find the eigenvalues of A (**4** *marks*)

(d) Find the eigenvectors corresponding to each of the eigenvalues found in part (c). (**10** *marks*)

4. Diagonalize $A = \begin{bmatrix} -1 & 3 \\ 0 & 2 \end{bmatrix}$ (**20** *marks*)