

PAN AFRICA CHRISTIAN UNIVERSITY

CERTIFICATE IN INFORMATION AND COMMUNICATION TECHNOLOGY

SPECIAL EXAMINATION

DEPARTMENT: COMPUTING AND INFORMATION TECHNOLOGY

COURSE CODE: CICT0114

COURSE TITLE: ELEMENTARY MATHEMATICS

EXAM DATE: XXXX, XXXX AUGUST, 2020

TIME: XXXXXX

INSTRUCTIONS

- Read all questions carefully before attempting.
- Answer FOUR questions.
- Write only your **student number** on the answer booklet provided.

(Answer any four questions)

Question 1:

a) Let $U = \{1, 2, \dots, 9\}$ be the universal set, and let

$$\begin{aligned} A &= \{1, 2, 3, 4, 5\}, & C &= \{5, 6, 7, 8, 9\}, & E &= \{2, 4, 6, 8\}, \\ B &= \{4, 5, 6, 7\}, & D &= \{1, 3, 5, 7, 9\}, & F &= \{1, 5, 9\}. \end{aligned}$$

Find: i) $A \cup C$

[2 Marks]

ii) $(A/E)^C$

[4 Marks]

iii) $(B \cap F) \cup (C \cap E)$

[4 Marks]

Question 2:

a) Evaluate the following:

i) $8!$

[1 Mark]

ii) ${}^{12}P_7$

[2 Marks]

iii) 8C_3

[2 Marks]

b) The White shirt costs Ksh. 22.50, and the blue shirt costs Ksh. 17.50. Calculate the percentage difference.

[2 Marks]

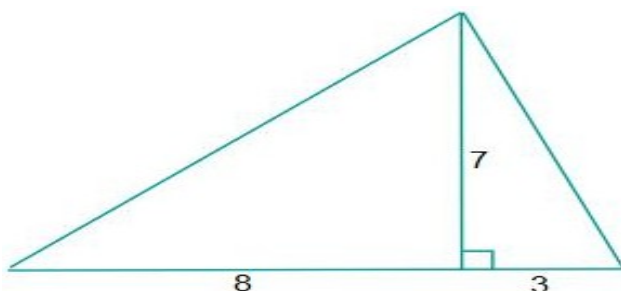
c) The sale price of a toy phone was Ksh.150, which was only 80% of normal price. Find the normal price.

[3 Marks]

Question 3:

a) Calculate the area of the triangle below.

[4 Marks]



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b) Calculate the area of a circle with radius of 1.2 m. **[3 Marks]**

c) The circle has radius 21 centimeters. Calculate its circumference. Use $(22/7)$ as an approximation for π . **[3 Marks]**

Question 4:

Convert the following:

[10 Marks]

- i) $2D5_{16}$ to decimal equivalent
- ii) 77_{10} to binary number
- iii) 523_8 to decimal equivalent
- iv) 1110110110_2 to octal equivalent
- v) 11000000111001_2 to hexadecimal number

Question 5:

a) Let $A = \begin{bmatrix} 1 & 2 \\ 3 & -4 \end{bmatrix}$ $B = \begin{bmatrix} 5 & 0 \\ -6 & 7 \end{bmatrix}$

Find:

i) $3A - 4B$ **[5 Marks]**

ii) BA **[5 Marks]**

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