

TAKORADI TECHNICAL UNIVERSITY
FACULTY OF APPLIED SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
END OF SECOND SEMESTER RESIT/SUPPLEMENTARY EXAMINATION OF
2018/2019

HND IN ICT 1 COURSE: PROBABILITY & STATISTICS
COURSE CODE: ICT 112 TIME: 2 Hrs

Answer all questions

1. a. Find the inverse of the matrix $A = \begin{bmatrix} 3 & 1 \\ 4 & 2 \end{bmatrix}$

b. Solve the system with two variables using the Cramer's rule.

$$3x - 2y = 17$$

$$4x + 5y = -8$$

2.(a) Given $f(x) = 5x^2 + 2x - 13$ Evaluate $f(5), f(-3)$

(b) If $p(x) = 8x + 4$ and $q(x) = 5x + 15$ find

(i) $p(x) + q(x)$

(ii) $p(6)$

(b) Find the remainder of $f(x)$ if $f(x) = x^3 - x^2 - 3x + 6$ is divided by $(x - 1)$

3. (a) Find the value of the determinant of 3 by 3 matrices below

(i) $A = \begin{pmatrix} 1 & 9 & 7 \\ 6 & 5 & 4 \\ 3 & 8 & 2 \end{pmatrix}$

(b) Given the matrix $B = \begin{pmatrix} 7 & 5 \\ -10 & t \end{pmatrix}$. Find the value of t if the determinant is 106.

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4. Given that $h(x) = 5x^3 + 3x^2 + x + 2$ and $p(x) = 2x^3 + 4x + 8$

(i) $h(x) - p(x)$

(ii) $h(x) + p(x)$

5. A tailor makes two types X and Y dresses. Each type of the dresses requires the use of materials A, B and C. The table below gives the number of square metres of each material required to make each type of dress, the total square metres of each material available and estimated profit for each type of dress.

	Type X	Type Y	Available
Material A	2	1	16
Material B	1	2	11
Material C	1	3	15
Profit	GHC 30	GHC 50	

- If the tailor makes x units of type X and y units of type Y, write down all the inequalities in terms of x and y .
- Represent by shading in a sketch, the solution set of the inequalities
- Identify all vertices in the sketch
- Find how many of each dress the tailor should make in order to make the greatest profit.