الجامعة الوطنية
National University
Science & Technology للعلوم والتكنولوجيا
كلية عمان البحرية الدولية
International Maritime College Oman

ACADEMIC YEAR 2023 - 2024

Program	Semester	Term	Paper
FOUNDATION	**1**	**1**	**MIDTERM**

MODULE NAME:	**APPLIED MATHEMATICS**		
MODULE CODE:	**FMTH006**	**EXAM DATE:**	**22/10/2023**
INSTRUCTOR's NAME:	**Muhammad Kazam**	**DURATION:**	**90 mins.**

Questions to be answered on:	**Allowed tools:**	**Number of pages**
☑ Space provided on the question paper	Pen, Pencil & Calculator	(Incl. cover page)**: 07**

Points of attention:

- For each question, the maximum earned points are mentioned between brackets at the end of each question.
- Write very clearly! Answers that are not readable are not marked and don't get points!
- Make sure your answers are written to the point.
- All answers must be written **in English**.
- Write all the answers **in blue or black pen only**.
- When finished, submit the question paper, together with the answer scripts and the signed cover page to the invigilator.
- Cheating / copying is not allowed and will result in failing the exam.

FINAL MARKS

	25
	20

STUDENT NAME:	
STUDENT ID:	
CLASS:	

Number of answer scripts:……..…………….

Invigilator:……………….…………….…..

Student's signature: ……………………………

Time of receipt:………………………..….

Question 1 **[5 Marks]**

Look at the frequency distribution for a data given below and do the following tasks.

Classes	Frequency
$60 - 65$	12
$66 - 71$	14
$72 - 77$	11
$78 - 83$	1

a. Determine the lower class limit of the second class. **(1 mark)**

b. Calculate the class boundaries for the data given in the table. **(2 marks)**

c. Calculate the cumulative frequency for the data given in the table. **(2 marks)**

Question 2 [5 Marks]

A prime number is a number that is evenly divisible only by 1 and the number itself. The prime numbers less than 50 are listed below.

2 3 5 7 11 13 17 19 23 29
31 37 41 43 47

If a number is chosen at random, calculate the probability that:

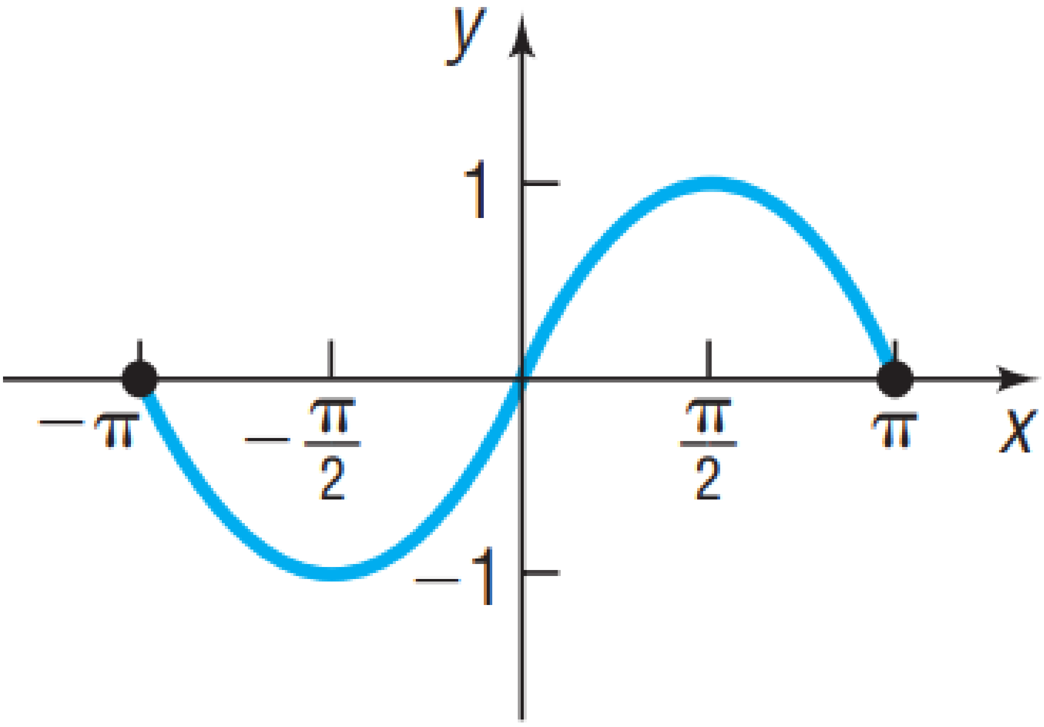
a. The number is even. **(2 marks)**

b. The number is greater than 70. **(1 mark)**

c. The sum of the digits is odd. **(2 marks)**

Question 3 **[3 Marks]**

Look at the graph given below and answer the following questions.



(Sullivan, 2018)

a. Use the Vertical Line Test to decide whether the curve is a graph of a function of *x*. **(1 mark)**

b. If it is the graph of a function, then calculate the domain and range of the function. **(2 marks)**

Question 4 [5 Marks]

The total price of 4 calculators and 3 pencils is OMR 23. But, the price of 3 calculators and 7 pencils is OMR 41. Find the price of the pencil and the calculator.

Question 5 **[6 Marks]**

Draw the graph for the solution set of the system of inequalities given below. Find the coordinates of all vertices and determine whether the solution set is bounded or not.

$\boldsymbol{x+y\leq 12}$ $\boldsymbol{x+2y\geq 12}$ $\boldsymbol{y\geq 2}$ $\boldsymbol{x\geq 0}$

Reference:

Sullivan, M. (2018). *Precalculus* (10th ed.). Pearson.