DHOFAR UNIVERSITY
FOUNDATION PROGRAM | MATH UNIT
FPM 102B – Math Level 2 (APPLIED)
Model Paper
Term (2023-24)

Student Name										
Student ID										**Date:**
Section										**Duration: 1 hour 30 minutes**
Instructor										

Instructions:

1) Be sure that the exam has **4** questions with scratch sheet at the end.
2) Please turn off your mobile phone.
3) Use only a blue or black pen.
4) No talking, passing objects or looking in the direction of another student's paper. Any of these behaviors will be considered cheating.

Dhofar University's Academic Integrity Policy (Policy No. DU-AC-007) is intended to foster hard work, honesty, and responsibility. It strictly prohibits all forms of academic misconduct, including cheating and collusion, plagiarism, and impersonation.

By reading this pledge, I affirm that I have upheld the AIP and that my submitted work is my own and therefore free of any form of cheating.

تهدف سياسة النزاهة الأكاديمية بجامعة ظفار (السياسة رقمDU-AC-007) إلى تعزيز العمل الجاد والأمانة والمسؤولية و تحظر تمامًا جميع الأشكال التي تخالف النزاهة الأكاديمية ، بما في ذلك الغش والتواطؤ والسرقة الأدبية والإنتحال.

من خلال قراءتي لهذا التعهد أؤكد أنني ملتزم بسياسة النزاهة الأكاديمية و أن عملي هذا هو خاص بي ويخلو من أي شكل من أشكال الغش.

Student's Signature: _____

Marking Grid

Question	Question 1 MCQ's (out of 10)	Question 2 (Out of 10)	Question 3 (Out of 10)	Question 4 (Out of 10)	Total / 40 marks
Marks obtained					

Marker's name:		Moderator's name:	
Marker's signature:		Moderator's signature:	
Date:		Date:	

<u>Question 1</u>: Circle the correct answer. **(10 Marks)**

1)	Which set of data has mid-range of 8? a. $5, 20, -4, 18, 3$ b. $5, 2, 9, 3, 10,$ c. $6, 2 - 6, 3, 10$ d. $3, -2, 7, 4, 12$
2)	Exponential form of $\log_2 32 = 5$ is: a. $(5)^2 = 32$ b. $(2)^5 = 32$ c. $(32)^5 = 2$ d. $(5)^{32} = 2$
3)	$\log_6 1 + \log_6 6 - \log_6 1 =$ a. 0 b. -1 c. 1 d. $Undefined$
4)	Which number is the mode of the data set 2, 5, 9, 9, 5, 6, 9, 2 ? a. 5 b. 2 & 5 c. 2 d. 9
5)	When two coins are tossed., the probability of "getting at most 1 head" is: a. $\frac{1}{4}$ b. $\frac{1}{8}$ c. $\frac{3}{4}$ d. $\frac{1}{2}$
6)	When a fair dice is rolled, the number of possible outcomes are: a. 36 b. 6 c. 4 d. 8
7)	The exponential function is the inverse of: a. Linear function b. Quadratic function c. logarithmic function d. Trigonometric function
8)	The inverse of f(x) = $log_3(x + 2)$ is: a. $f^{-1}(x) = 2^x$ b. $f^{-1}(x) = 3^x$ c. $f^{-1}(x) = 2^x - 3$ d. $f^{-1}(x) = 3^x - 2$
9)	If $log_4 x = 2$ then $x =$ a. 4 b. 8 c. 16 d. 2
10)	$log_8(64) =$ a. 2 b. -2 c. 8 d. 64

Question 2: **(10 Marks)**

1) Solve the following Logarithmic Equation. (4 marks)

$$\log_4(3x - 5) - \log_4(x) = 0$$

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2) What rate of interest of a percent, **compounded annually,** is needed for an investment of **$ 2000** to grow to **$ 2500** in **7** years? (6 marks)

Question 3: **(10 marks)**

1) The data represent the scores obtained in a mathematics examination:
8, 5, 9, 5, 7, 5, 9, 0 then find:

a) Mean (2 marks)

b) Median (2 marks)

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2) Two fair coins are tossed. The sample space of this random experiment is given below. (4 marks)

HH	HT
TH	TT

Find the Probability of getting:

a) At least 1 Tails

b) **3** Tails

c) **2** Tails

d) **1** tail and **1** head

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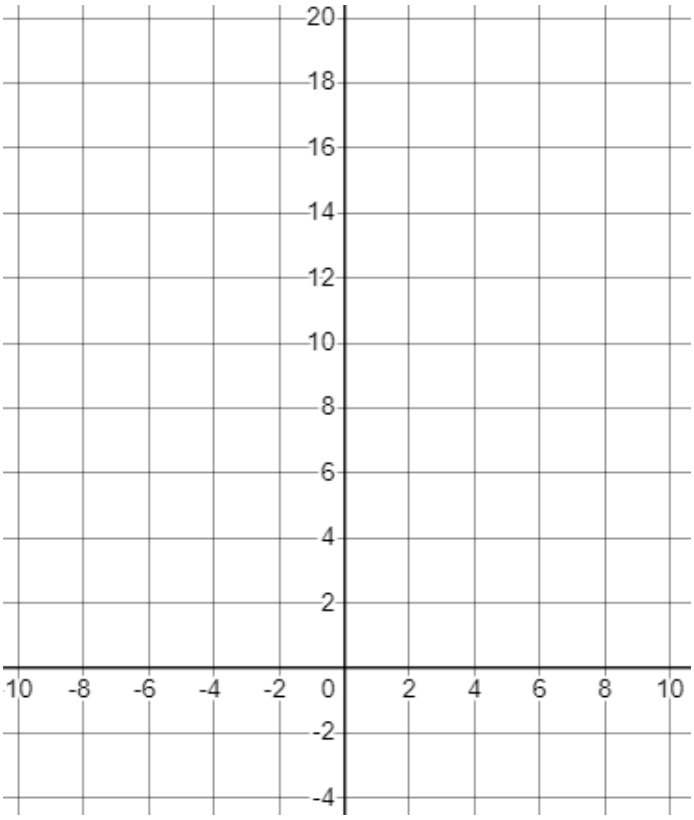
3) If a club consists of **10** members, How many ways are there for selecting a committee of **4** ? (2 marks)

Question 4: **(10 Marks)**

1) Sketch the function $f(x) = \log_4(x-3)$ using inverse relationship between logarithmic and exponential function. (5 marks)



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2) Find the value of x for the nearest hundredth: (5 marks)

$$e^{x-4} - 3 = 7$$

End of Model Paper - Final Exam

SCRATCH SHEET

Name: _____

Note:

1. This scratch sheet will not be marked.
2. Do not detach it from the rest of exam papers.