

Centre of Preparatory Studies (CPS)

Math Unit

Math Level 2 Applied (FPM 102B)

Model Paper - Final Exam

Term 1 Fall, 2024-25

Student Name											
Student ID											Date: 14/11/2024
Section											Duration: 1 hour 30 minutes
Instructor/s	Mohammad Mustafa, Amal AL Shanfari										

General Instructions

- Place your DU ID card on your desk throughout the examination period.
- Read the task instructions carefully.
- Use only a blue or black pen. (Pencil is allowed only for writing tasks)
- Not allowed to use programmable calculators and/or smart-watches/phones or any other smart devices inside the exam hall.
- Must abide by DU's Academic Integrity Policy (AIP)- Policy No. DU-AC-007



Dhofar University's Academic Integrity Policy (AIP) 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 signing below, I agree to abide by the AIP.

تهدف سياسة النزاهة الأكاديمية بجامعة ظفار إلى تعزيز العمل الجاد والأمانة والمسؤولية و تحظر تمامًا جميع الأشكال التي تخالف النزاهة الأكاديمية، بما في ذلك الغش والتواطؤ والسرقة الأدبية والانتحال. بالتوقيع أدناه ، أوافق على الالتزام بسياسة النزاهة الأكاديمية.

Signature of the student _____

Marking Grid					
Question 1		10	Question 3		10
Question 2		10	Question 4		10
Total					30

marked by: _____	Moderated/ Checked by: _____
Signature: _____ Date: _____	Signature: _____ Date: _____

Question 1: MULTIPLE CHOICE. Circle the correct answer.

(10 Marks)

1)	Which number is the mode of the data set: 4 , 1 , 1 , 5 , 4 , 6 , 1 , 2 ? a. 1 b. 2 c. 4 d. 5
2)	Which number is the mean of the data set: 14 , 8 , 4 , 8 , 9 , 11 a. 8 b. 8.5 c. 9 d. 11
3)	When two coins are tossed, the probability of getting 3 heads is: a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. $\frac{3}{4}$ d. 0
4)	When one die is rolled, the number of possible outcomes is: a. 2 b. 4 c. 6 d. 36
5)	In how many ways can 7 books be arranged on a shelf? a. 7 b. 21 c. 49 d. 5040
6)	From a group consists of 10 members, in how many ways can a president, vice president and a treasurer be selected from them? a. 720 b. 120 c. 10 d. 3
7)	The inverse of the function $f(x) = \log_5 x$ is: a. $y = 5^x$ b. $y = x^5$ c. $y = 5^2$ d. $y = x^2$
8)	The inverse of the function $f(x) = \log_2(x - 3)$ a. $y = 2^x + 3$ b. $y = 2^x - 3$ c. $y = 3^x + 2$ d. $y = 3^x - 2$
9)	$\log_y y =$ a. y b. 1 c. 0 d. undefined
10)	$\log_x 0 =$ a. x b. 0 c. 1 d. undefined

Question 2: (10 Marks)

a) For the following data: 6 , 2 , 6 , 4 , 2 , 4 , 10 , 5 , 1 find:

1. Median (2 marks)

2. Mid- Range (2 marks)

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

What is the probability of:

1. Getting same face on both dice?
2. Getting a total of 11?
3. Getting a difference of 3?
4. Getting a total of 12?

(1,1)	(1,2)	(1,3)	(1,4)	(1,5)	(1,6)
(2,1)	(2,2)	(2,3)	(2,4)	(2,5)	(2,6)
(3,1)	(3,2)	(3,3)	(3,4)	(3,5)	(3,6)
(4,1)	(4,2)	(4,3)	(4,4)	(4,5)	(4,6)
(5,1)	(5,2)	(5,3)	(5,4)	(5,5)	(5,6)
(6,1)	(6,2)	(6,3)	(6,4)	(6,5)	(6,6)

c) A club consist of 20 members. In how many ways a committee of 5 can be selected from them? (2 marks)

Question 3: (10 Marks)

a) Find the compound amount $A(t)$ in the following:

1) If **10000\$** is invested for **5** years at an interest rate **2%** compounded monthly.

(3 marks)

2) If **400\$** is invested for **7** years at an interest rate **3%** compounded semiannually.

(3 marks)

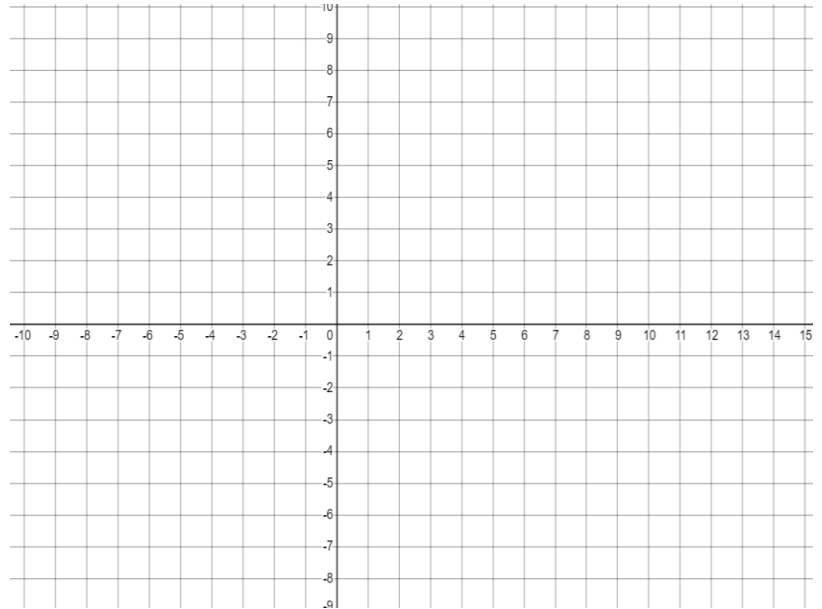
3) Solve the following exponential equation:

(4 Marks)

$$4^{x-3} + 2 = 7$$

Question 4: (10 Marks)

- a)** Graph the Logarithmic function: $f(x) = \log_3(x + 2)$ using the inverse relationship between logarithmic and exponential functions (6 marks)



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- b)** Solve the following logarithmic equation. (4 marks)

$$\log_2(x + 3) + \log_2 5 = 3$$

SCRATCH SHEET

Name: _____

Note:

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