Centre of Preparatory Studies (CPS)

Math Unit

Math Level 2 Applied (FPM 102B)

Model paper Midterm Exam
Term 1 Fall, 2024-25

Student Name		
Student ID		**Date: 15/10/2024**
Section		**Duration: 1 hour 15 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 والإنتحال. بالتوقيع أدناه ، أوافق على الالتزام بسياسة النزاهة الأكاديمية.

Signature of the student _____

Marking Grid					
Question 1		7	Question 3		6
Question 2		9	Question 4		8
			Total		30

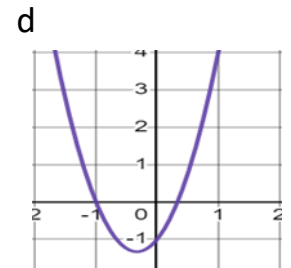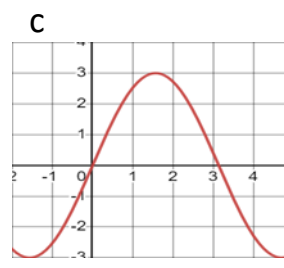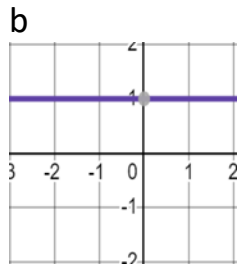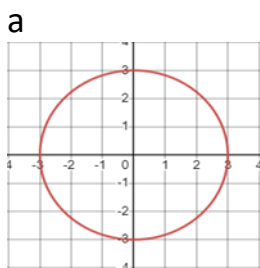| marked by: _____	Moderated/ Checked by: _____
Signature: _____ Date: _____	Signature: _____ Date: _____

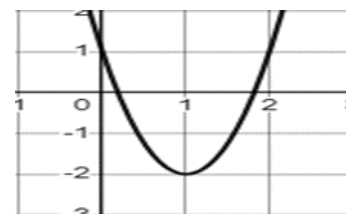|	Question 1: MULTIPLE CHOICE. Circle the correct answer. (7 Marks)
1)	For what value of m the set $f(x) = \{(1,6),(2,6),(3,5),(m,5)\}$ becomes a function: a. 1 b. 4 c. 2 d. 3
2)	What is the domain of the function $f(x) = \dfrac{1}{x^2 - 4}$ a. $\mathbb{R}$ b. $\mathbb{R}\backslash\{-2\}$ c. $\mathbb{R}\backslash\{2\}$ d. $\mathbb{R}\backslash\{-2, 2\}$
3)	Which one of the following graphs is not a function? a b c d
4)	Which of the following functions is a quadratic function? a. $f(x) = x^2 - 3x$ b. $f(x) = x^3$ c. $f(x) = 3x + 2$ d. $f(x) = e^x$
5)	The vertex of the quadratic function $f(x) = x^2 + 2x - 12$ is: a. $(-1, -9)$ b. $(1, -13)$ c. $(-1, -13)$ d. $(1, -9)$
6)	The line of symmetry in the shown quadratic function is: a. $x = 2$ b. $x = 1$ c. $y = 2$ d. $y = 1$
7)	If $8^{3x} = 2^{27}$,then $x =$ a. 0 b. 1 c. 3 d. -3

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Question 2:   (9 Marks)

a) Given the graph of a quadratic function, find: (5 Marks)

  1. Vertex

  2. Line of symmetry

  3. Minimum

  4. Domain

  5. Zeros (x- intercepts)

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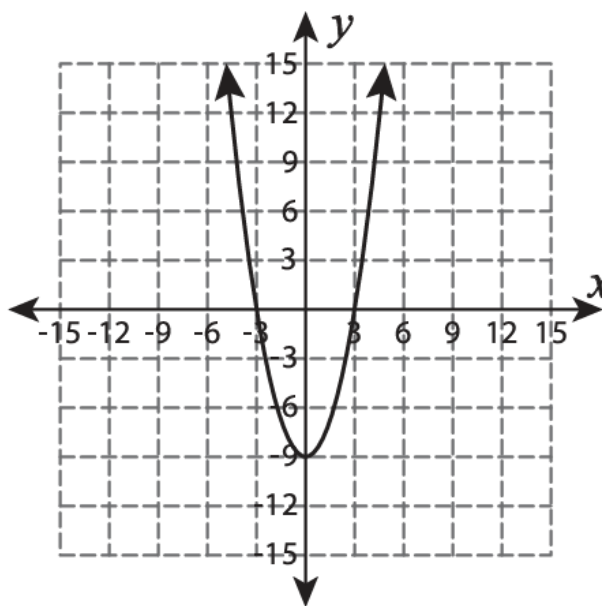
b) Find the domain of the function: $f(x) = \sqrt{2x + 20}$ (4 marks)

Question 3:   (6 Marks)

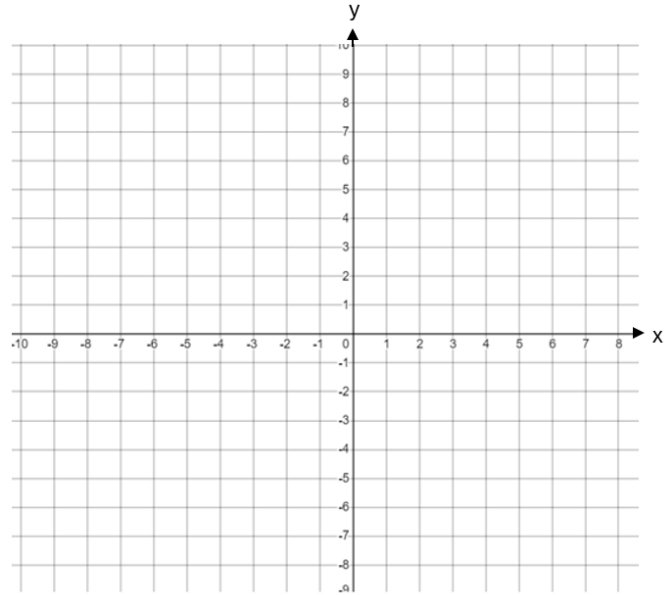Solve the following exponential equations.   (3 Marks)

a) $7^{3x} \cdot 7^x = 49$

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b) $5^{4x-2} = \dfrac{1}{125}$ (3 Marks)

<u>Question 4:</u>   (8 Marks)

a) Graph the exponential function: $f(x) = 2 + 2^x$ (5 marks)

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b) Without graphing, determine whether the given equation has a graph that is symmetric with respect to the x-axis, the y-axis, the origin, or none of these.   (3 marks)

$$4x^6 - 2y^3 = 5$$

<u>x-axis</u>	<u>y-axis</u>	<u>Origin</u>

End of Model paper Midterm Exam

SCRATCH SHEET

Name: _____

Note:

1. This scratch sheet will not be marked.

2. Do not detach it from the rest of exam papers.