



Center of preparatory studies

Math Unit

Math Level 2 Pure (FPM 102B)

Final Exam – Model Paper

Term 1 Fall, 2024-25

Student Name								
Student ID								Date: 14/11/2024
Section								Duration: 1hour 45 minutes
Instructor/s	Mohammad Mustafa							

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.

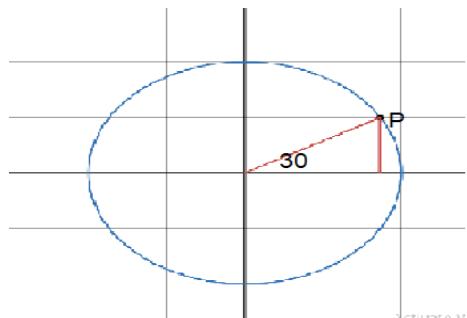
تهدف سياسة النزاهة الأكاديمية بجامعة ظفار إلى تعزيز العمل الجاد والأمانة والمسؤولية و تحظر تمامًا جميع الأشكال التي تخالف النزاهة الأكاديمية، بما في ذلك الغش والتواطؤ والسرقة الأدبية والانتحال. بالتوقيع أدناه ، أوافق على الالتزام بسياسة النزاهة الأكاديمية.

Signature of the student _____

Marking Grid					
Question 1		10	Question 4		8
Question 2		7	Question 5		5
Question 3		10			
Total					40

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

Question 1: MULTIPLE CHOICE. Circle the correct answer.**(10 Marks)**

1)	The mode of the following data 0, 4, -4, 9, 8, 8, 9, 4, 4 is: (a) 4 (b) 8 (c) 9 (d) 4,8, and 9
2)	In how many ways can 3 books be arranged on a shelf? (a) 24 (b) 1 (c) 6 (d) 20
3)	When two dice are rolled, the probability of getting sum of 2 is: (a) 0 (b) 1 (c) $\frac{1}{36}$ (d) $\frac{7}{36}$
4)	When one coins is tossed, the probability of getting one head: (a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) 1 (d) 0
5)	The coordinates of P on the unit circle in the given graph is: (a) $(\frac{1}{2}, \frac{\sqrt{3}}{2})$ (b) $(\frac{\sqrt{3}}{2}, \frac{1}{2})$ (c) $(-\frac{1}{2}, \frac{\sqrt{3}}{2})$ (d) $(\frac{1}{2}, -\frac{\sqrt{3}}{2})$ 
6)	$\sin x =$ (a) $\frac{1}{\csc x}$ (b) $\frac{1}{\sin x}$ (c) $\frac{1}{\cos x}$ (d) $\frac{1}{\sec x}$
7)	$\cot (-x) =$ (a) $-\sin x$ (b) $-\cos x$ (c) $-\frac{\cos x}{\sin x}$ (d) $-\frac{\sin x}{\cos x}$
8)	$1 - \cos^2 x =$ (a) $\cos^2 x$ (b) $-\cos^2 x$ (c) $\sin^2 x$ (d) $-\sin^2 x$

9)	$\frac{\sin x}{\sin 2x}$	(a) $\frac{1}{2 \sin x}$	(b) 0	(c) $\frac{1}{2 \cos x}$	(d) 1
10)	In how many ways can 3 pictures be selected from 6 album pictures?				
	a) 20	(b) 30	(c) 10	(d) 15	

Question 2: (7 Marks)

a) Three coins are rolled, find: (4 marks)

- 1) The sample space?
- 2) The probability of getting two heads and one tail?
- 3) The probability of getting at least two heads?
- 4) The probability of getting at most one tail?

b) The following data represents the scores in math midterm exam:
20, 15, 5, 10, 25, 30, find:

- 1) Mean (2 marks)
- 2) Median (1 mark)

Question 3:**(10 Marks)**

a) If $\cos x = \frac{\sqrt{3}}{2}$ in the fourth quadrant, find:

1) $\sin x =$ (2 marks)

2) $\sec x =$ (2 marks)

3) $\cot(2x) =$ (2 marks)

b) Prove the following identity:

$$\frac{\csc x - \sin x}{\sec x} = \cot x \cos^2 x \quad (4 \text{ marks})$$

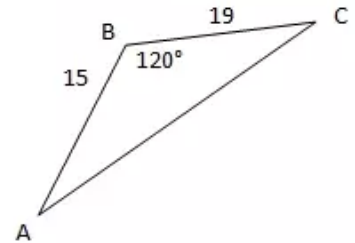
Question 4:

(8 Marks)

In the following triangle find:

a) $AC =$

(4 Marks)



b) (The angle A) =

(4 Marks)

Question 5:

(5 Marks)

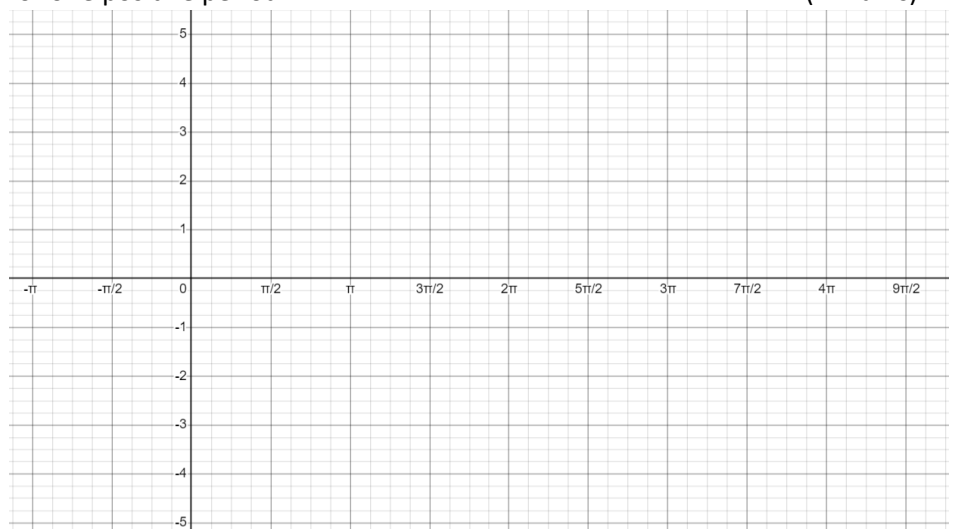
If $f(x) = 4 \sin\left(\frac{1}{2} \pi\right)$, then:

a) Find the amplitude and the period of this function.

(1 Mark)

b) Sketch the graph of the function for one positive period.

(4 Marks)



End of Final Exam – Model Paper

SCRATCH SHEET

Name: _____

Note:

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