Taif University
Department of Mathematics
& Statistics

Numerical Methods
Final Exam
Time: 3 Hours

Name: _____ University ID: _____

INSTRUCTIONS

- Make sure to write your name and ID in the first page and every page thereafter.
- The question booklet consists of **4 pages**. Make sure you have all of them.
- Keep quite during the exam. For assistance, raise your hand and an invigilator will come to see you
- Answer the questions in the spaces provided after each question. If you run out of room for an answer, continue on the back of the page.
- The mark of each question is printed next to it.
- Keep in mind that possession or use of mobile phones or any other unauthorized electronic devices in the exam room is strictly prohibited.
- Make sure you read and sign the **Declaration Of Academic Integrity** shown below.

Question:	1	2	3	4	5	6	7	Total
Points:	5	9	9	10	6	8	8	55
Score:								

Declaration of Academic Integrity

By signing below, I pledge that the answers of this exam are my own work without the assistance of others or the usage of unauthorized material or information.

Signature: .....

Answer the following questions.

[5] 1. $\sin^2(x) + \cos^2(x) =$

A. -1 B. 1 C. 0 D. $\tan(x)$

2. This is a multiple parts question

[1] (a) If $x = 2$ and $y = 5$, then $x + y$

A. 2 B. 7 C. 21 D. 1

[1] (b) If $x = 12$ and $y = 5$, then $x + y$

A. 17

B. 7

C. 21

D. 1

[2] (c) Who invented the pencil ◯ Me ◯ You ◯ They ◯ Him ◯ Socrates

[2] (d) If $f(x) = \sin(x)$, then $f'(x) =$_____.

(e) True or False

[2] (a) ___ The world is all that is the case.

[1] (b) ___ My favorite color is blue.

3. Let $f(x) = \sin(x) + x^2$

[4] (a) Compute $\dfrac{df}{dx}$.

[5] (b) Compute $\displaystyle\int_0^1 f(x)\,dx$.

[10] 4. Describe the effect of error propagation on numerical results.

[3] 5. (a) What do you do with $f(x) = x$?

[3] (b) Is your answer different if $f(x) = \tan(x)$?

[8] 6. In no more than one paragraph, explain why the earth is round.

7. Answer the following

[1] (a) find $f(2.25)$.

(a) _____

[1] (b) Approximate $f'(0)$.

(b) _____

[1] (c) Approximate $\int_1^5 f(x)\,\mathrm{dx}$.

(c) _____

[5] (d) Redo questions (a), (b) and (c) with $f(1) = 4$ and $f(2) = 5$.

Hope you all the best!
Dr. X Y Z, Dr. M N T