

# Introdução à Engenharia de Software

## 1º Semestre, 2023/24

Exame Época Normal  
15 de janeiro de 2024

Número mecanográfico: \_\_\_\_\_

Nome: \_\_\_\_\_

O exame tem 20 perguntas de escolha múltipla.

As perguntas de escolha múltipla tem apenas uma resposta correta, devem ser respondidas na grelha presente nesta página do enunciado com um **X**. Para anular uma resposta, o aluno deve preencher a célula. As respostas anuladas não descontam, mas as erradas **descontam** (cotação da pergunta  $\times$  0.25).

A duração total do exame é de **1h30**.

*The exam has 20 multiple-choice questions.*

*The multiple-choice questions have only one correct answer and should be answered in the grid provided on this page of the exam with an **X**. To cancel an answer, the student should fill in the cell. Canceled answers do not result in deductions, but incorrect answers **deduct** (question score  $\times$  0.25).*

*The total duration of the exam is **1h30**.*



	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
A																				
B																				
C																				
D																				

1. (0.90 pts) Mean of 5,5,5,5?  
 A. 20  
 B. 0  
 C. 10  
 D. 5
2. (0.60 pts) What is  $\tan(0 \text{ degrees})$ ?  
 A. 1  
 B. infinity  
 C. 0  
 D. undefined
3. (1.19 pts) What is the limit of  $(x \text{ squared} - 1)/(x-1)$  as  $x$  approaches 1?  
 A. 0  
 B. undefined  
 C. 1  
 D. 2
4. (1.19 pts) What is the derivative of  $e$  to the  $x$ ?  
 A.  $1/x$   
 B.  $x$  times  $e$  to the  $x-1$   
 C.  $e$  to the  $x$   
 D.  $\ln x$
5. (1.19 pts) Solve:  $2x + 5 = 13$   
 A.  $x = 9$   
 B.  $x = 3$

- C.  $x = 4$
- D.  $x = 8$

6. (1.19 pts) Solve:  $5x - 3 = 2x + 9$

- A.  $x = 2$
- B.  $x = 4$
- C.  $x = 12$
- D.  $x = 6$

7. (1.19 pts) Factor:  $x^2 - 9$

- A.  $x(x-9)$
- B.  $(x-3)^2$
- C.  $(x-3)(x+3)$
- D.  $(x-9)(x+1)$

8. (0.90 pts) Complementary angle to 30 degrees?

- A. 120 degrees
- B. 90 degrees
- C. 150 degrees
- D. 60 degrees

9. (1.19 pts) Expand:  $(x-3)(x+3)$

- A.  $x^2 + 6x - 9$
- B.  $x^2 + 9$
- C.  $x^2 - 6x + 9$
- D.  $x^2 - 9$

10. (0.90 pts) What percentile is the median?

- A. 75th
- B. 50th
- C. 100th
- D. 25th

11. (0.90 pts) What is the sample space of a coin flip?

- A. H,T
- B. H,T,E
- C. 0,1
- D. 1,2

12. (1.19 pts) What is  $d/dx(1/x)$ ?

- A.  $-1/x$
- B.  $1/x^2$
- C.  $1/x$
- D.  $-1/x^2$

13. (1.19 pts) What is  $d/dx(\cos x)$ ?

- A.  $-\sin x$
- B.  $\cos x$
- C.  $\sin x$
- D.  $-\cos x$

14. (0.60 pts) What is  $\sin(30 \text{ degrees})$ ?

- A. 1
- B. 0
- C.  $\sqrt{3}/2$
- D.  $1/2$

15. (0.90 pts) Pythagorean theorem:  $a^2 + b^2 = ?$

- A.  $c^2$
- B.  $2c$

- C. ab
- D. a+b

16. (0.60 pts) What is  $\sin(90 \text{ degrees})$ ?

- A. 0
- B. -1
- C. 1
- D.  $\sqrt{2}/2$

17. (0.90 pts) Diagonal of square side 1?

- A.  $\sqrt{2}$
- B. 2
- C.  $\sqrt{3}$
- D. 1

18. (1.19 pts) Simplify:  $(2x)$  cubed

- A.  $8x$
- B.  $8x$  cubed
- C.  $6x$  cubed
- D.  $2x$  cubed

19. (1.19 pts) What is the derivative of a constant?

- A. 0
- B. constant
- C. 1
- D. undefined

20. (0.90 pts) What is the complement of  $P(A)$ ?

- A.  $1/P(A)$
- B.  $1+P(A)$
- C.  $P(A)$
- D.  $1-P(A)$