

# 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.

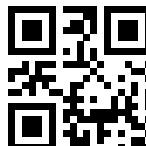
As perguntas de escolha múltipla tem apenas uma resposta correta, devem ser respondidas na grelha presente nesta página do enunciado com um **X**. Para anular uma resposta, o aluno deve preencher a célula. As respostas anuladas não descontam, mas as erradas **descontam** (cotação da pergunta  $\times$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

1. (0.90 pts) Probability of rolling a 3 on a die?

- A.  $1/2$
- B.  $1/3$
- C.  $1/12$
- D.  $1/6$

2. (1.19 pts) Expand:  $(x-3)(x+3)$

- A.  $x$  squared + 9
- B.  $x$  squared + 6x - 9
- C.  $x$  squared - 9
- D.  $x$  squared - 6x + 9

3. (1.19 pts) What is  $d/dx(x)$ ?

- A.  $x$
- B. 1
- C. 0
- D. undefined

4. (1.19 pts) What is the derivative of  $x$  cubed?

- A.  $3x$  squared
- B.  $3x$
- C.  $x$  squared
- D.  $x$  cubed

5. (0.90 pts) What is  $P(A \cup B)$  if A,B disjoint?

- A.  $P(A)+P(B)$
- B.  $P(A)-P(B)$

- C. 1  
D. P(A) times P(B)
6. (0.60 pts) What is  $\cos(90 \text{ degrees})$ ?  
A. 1/2  
B. 1  
C. -1  
D. 0
7. (1.19 pts) What is the product rule?  
A.  $(fg) \text{ prime} = fg$   
B.  $(fg) \text{ prime} = f \text{ prime } g + fg \text{ prime}$   
C.  $(fg) \text{ prime} = f \text{ prime } g - fg \text{ prime}$   
D.  $(fg) \text{ prime} = f \text{ prime } g \text{ prime}$
8. (0.60 pts) What is  $\cos(60 \text{ degrees})$ ?  
A. 0  
B. 1/2  
C.  $\sqrt{3}/2$   
D. 1
9. (1.19 pts) Solve:  $2x + 5 = 13$   
A.  $x = 9$   
B.  $x = 8$   
C.  $x = 3$   
D.  $x = 4$
10. (1.19 pts) What is  $d/dx(\sin x)$ ?  
A.  $\cos x$   
B.  $-\sin x$   
C.  $-\cos x$   
D.  $\sin x$
11. (0.90 pts) Diagonal of square side 1?  
A. 1  
B.  $\sqrt{2}$   
C.  $\sqrt{3}$   
D. 2
12. (0.90 pts) Area of a rectangle 5 by 3?  
A. 18  
B. 15  
C. 30  
D. 8
13. (0.60 pts) What is  $\tan(0 \text{ degrees})$ ?  
A. infinity  
B. undefined  
C. 0  
D. 1
14. (0.90 pts) What is the sample space of a coin flip?  
A. 1,2  
B. 0,1  
C. H,T  
D. H,T,E
15. (0.90 pts) Median of 2,4,6,8?  
A. 5  
B. 7

- C. 4
- D. 6

16. (1.19 pts) Factor:  $2x^2 + 8x$

- A.  $2x(x+4)$
- B.  $2(x^2 + 4x)$
- C.  $x(2x+8)$
- D.  $2x^2(1+4x)$

17. (1.19 pts) Solve:  $x^2 = 16$

- A.  $x = \pm 4$
- B.  $x = 256$
- C.  $x = 4$
- D.  $x = 8$

18. (1.19 pts) What is the power rule for  $x^n$ ?

- A.  $n$  times  $x$
- B.  $n$  times  $x^{n-1}$
- C.  $x^{n+1}$
- D.  $x^n$

19. (0.90 pts) Volume of sphere radius 3?

- A.  $9\pi$
- B.  $36\pi$
- C.  $12\pi$
- D.  $27\pi$

20. (1.19 pts) What is  $(x^3)^0$ ?

- A.  $x^3$
- B. 0
- C.  $x$
- D. 1