Unit 2 - Week 0

Register for Certification exam

Course outline

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Solution

Assignment 0

The due date for submitting this assignment has passed. **Due on 2019-02-04, 00:59 IST**
As per our records you have not submitted this assignment.

1) **The dimension of pressure is** *1 point*

(a) MLT^{-1}

(b) MLT^{-2}

(c) $ML^{-1}T^{-2}$

(d) $ML^{2}T^{-1}$

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(c)

2) *1 point*

The rank of the matrix $\begin{bmatrix} -4 & 1 & -1 \\ -1 & -1 & -1 \\ 7 & -3 & 1 \end{bmatrix}$ is

(a) 1

(b) 2

(c) 3

(d) 4

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.

If $A=\begin{bmatrix}1 & 2 & 3\\ 0 & 4 & 5\\ 0 & 0 & 1\end{bmatrix}$, then $\det(A^{-1})$ is

(a) $\frac{1}{2}$

(b) $\frac{1}{3}$

(c) 3

(d) $\frac{1}{4}$

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(d)

4) ***1 point***

The lowest eigenvalue of the matrix $\begin{bmatrix}4 & 2\\ 1 & 3\end{bmatrix}$ is

(a) 2

(b) 1

(c) 4

(d) 3

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a)

5) ***1 point***

The divergence of the vector field $\vec{u}=e^{x}\left(\cos(y)\hat{i}+\sin(y)\hat{j}\right)$ is

(a) 0

(b) $e^{x}\left(\cos(y)+\sin(y)\right)$

(c) $2e^{x}\cos(y)$

(d) $2e^{x}\sin(y)$

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(c)

6) ***1 point***

Curl of vector $\vec{V}(x,y,z)=2x^2\hat{i}+3z^2\hat{j}+y^3\hat{k}$ at $x=y=z=1$ is

(a) $-3\hat{i}$

(b) $3\hat{i}$

(c) $3\hat{i}-4\hat{j}$

(d) $3\hat{i}-6\hat{k}$

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a)

7) ***1 point***

At $x=0$, the function $f(x)=|x|$ has

(a) a minimum

(b) a maximum

(c) a point of inflexion

(d) neither a maximum nor minimum

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a)

8) ***1 point***

The value of $\lim_{x\to 0}\frac{x^3-\sin(x)}{x}=$

(a) 0

(b) 3

(c) 1

(d) -1

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:
(d)

9) **1 point**

If y is the solution of the differential equation $y^3\frac{dy}{dx}+x^3=0, y(0)=1$, the value of $y(-1)$ is

(a) -2

(b) -1

(c) 0

(d) 1

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(c)

10) **1 point**

The solution of the initial value problem $\frac{dy}{dx}=-2xy;\ y(0)=2$ is

(a) $1+2e^{-x^2}$

(b) $2e^{-x^2}$

(c) $1+e^{x^2}$

(d) $2e^{x^2}$

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(b)

End