Question **21**

Correct

Mark 3.00 out of 3.00

Flag question

If $$f(x,y)=\begin{cases}\dfrac{x^4-y^4}{x-y}, & x\neq(1,1)\\ -4\ , & x=(1,1)\end{cases}$$

then

f(1,1)= -4 ✔

$\lim\limits_{(x,y)\to(1,1)} f(x,y) =$ 4 ✔

If $f(x,y)$ continuous at (0,0) ??? not continuous at (0,0) ✔

The correct answer is:
f(1,1)= → -4,

$\lim\limits_{(x,y)\to(1,1)} f(x,y) =$ → 4,

If \(f(x,y) \) continuous at (0,0) ???
→ not continuous at (0,0)

Question **22**

Correct

Mark 1.00 out of 1.00

Flag question

. Let f be a function that is defined for all points (x,y) close to the point (a,b). Then f is continuous at the point (a,b) if

(a) $\lim\limits_{(x,y)\to(a,b)} f(x,y)=f(a,b)$ (b) $\lim\limits_{(x,y)\to(a,b)} f(x,y)$ exists

(c) $\lim\limits_{(x,y)\to(a,b)} f(x,y)$ does not exists (d) $\lim\limits_{(x,y)\to(a,b)} f(x,y)=f(0,0)$

- a. a ✔
- b. b
- c. b
- d. c

The correct answer is:
a

Question **18**

Correct

Mark 2.00 out of 2.00

Flag question

Let $\vec{r}(t) =< -6t, -6Ln(cost) >, Find\vec{T}, \vec{N}$

a. $\vec{T} =< -sint, cost >, \vec{N} =< -sint, cost >$

b. $\vec{T} =< -cost, sint >, \vec{N} =< sintt, cost >$ ✔

c. $\vec{T} =< cost, -sint >, \vec{N} =< cost, -sint >$

d. $\vec{T} =< cost, sint >, \vec{N} =< -cost, sint >$

e. $\vec{T} =< -cost, sint >, \vec{N} =< -cost, sint >$

The correct answer is:
$\vec{T} =< -cost, sint >, \vec{N} =< sintt, cost >$

Question **19**

Correct

Mark 1.00 out of 1.00

Flag question

Use the properties of the derivative to find $\frac{d}{dt}(\vec{r}(t).\vec{v}(t))$ given the following vector-valued functions.
$\vec{r}(t) = ti + 5cos2tj + 5sin2tk$ and $\vec{v}(t) = \frac{3}{t}i + 4cos2tj + 4sin2tk$

a. 1

b. $\frac{6}{t}$

c. $\frac{1}{t}$

d. 6

e. 0 ✔

The correct answer is:
0

Question **20**

Correct

Mark 1.00 out of 1.00

Remove flag

Which one of the listed vector-valued function defines a circle?

(a) $\mathbf{r}(t) = \langle 3\cos(2t), 3\sin(2t), 4\rangle$
(b) $\mathbf{r}(t) = \langle 3\cos(2t), 4\sin(2t), 0\rangle$
(c) $\mathbf{r}(t) = \langle 3\cos(t), 3\sin(t), 4t\rangle$
(d) $\mathbf{r}(t) = \langle 3\cos(t), 4\sin(t), 0\rangle$
(e) $\mathbf{r}(t) = \langle 3\cos^2(t), 3\sin^2(t), 4t\rangle$

a. a ✔

b. b

c. c

Question **15**

Correct

Mark 1.00 out of 1.00

Flag question

The points where the curve $\vec{r} = ti + t^2 j - 3tk$ intersects the plane $2x - y + z = -2$

a. (1,1,-3), (2,4,-6)

b. (-1,1,3), (2,4,-6)

c. (1,1,3), (2,4 , 6)

d. (1,1,-3), (-2,4,6)

The correct answer is:
(1,1,-3), (-2,4,6)

Question **16**

Correct

Mark 1.00 out of 1.00

Flag question

The value of $\lim_{t \to 1} < \frac{t^2 - 1}{t - 1}, \sqrt{t+8}, \frac{sin(\pi\, t)}{Ln\, t} > =$ equals :

a. does not exist

b. $< 2, 3, \pi >$

c. $< 2, 3, -\pi >$

d. $< 2, 3, 0 >$

The correct answer is:
$< 2, 3, -\pi >$

Question **17**

Correct

Mark 1.00 out of 1.00

Flag question

Let $\vec{r} = ti + t^2 j + t^3 k$ then the value of

$$\lim_{t \to 1} r(t) \, . \, \left(r'(t) \times r''(t) \right) =$$

Answer: 2

The correct answer is: 2

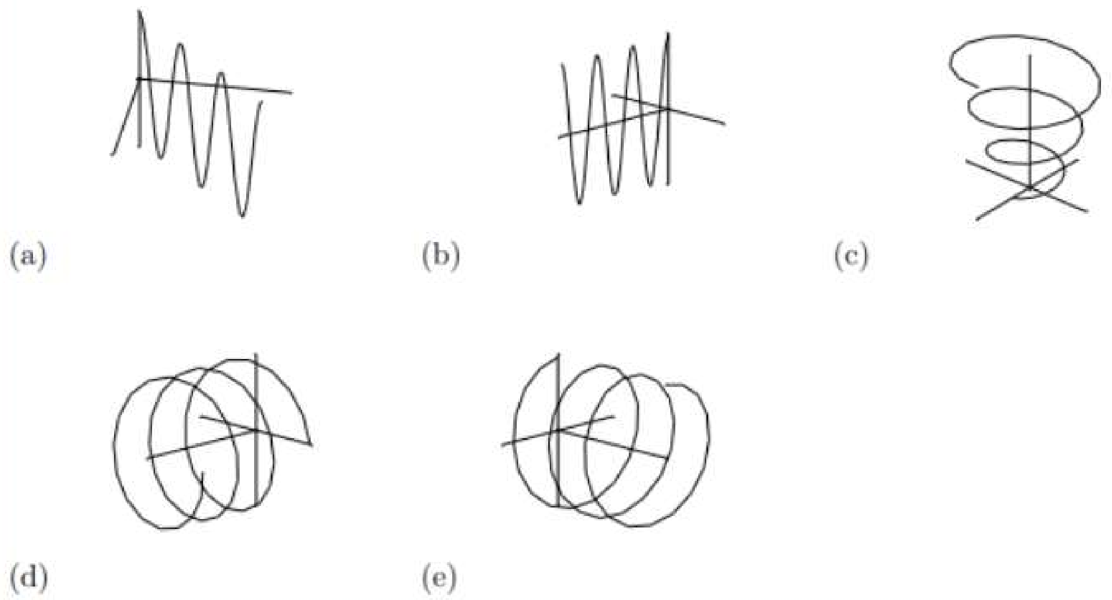
Question **13**

Correct

Mark 1.00 out of 1.00

Remove flag

Determine which of the following curves is defined by the vector function $\mathbf{r}(t) = \langle t, \cos(t), \sin(t) \rangle$.



- a. a
- b. b
- c. c
- d. d ✔
- e. e

The correct answer is:
d

Question **14**

Correct

Mark 1.00 out of 1.00

Flag question

If $\vec{r}(t) =< e^t, t^2, 1 >$
then the Binormal vector at t=0 is

- a. <0,1,0>
- b. $< e^{-3}, 0, 1 >$
- c. <0,0,1> ✔
- d. <0,0,-1>
- e. <1,0,0>

The correct answer is:
<0,0,1>

Question **11**

Correct

Mark 1.00 out of 1.00

Flag question

$$\lim_{(x,y)\to(0,0)} \frac{xy}{2x^2+y^2} =$$

a. 1

b. -1

c. 4

d. 0

e. Does not exist

The correct answer is:
Does not exist

Question **12**

Correct

Mark 1.00 out of 1.00

Flag question

Evaluate $\lim_{(x,y)\to(1,2)} (x^3y^2 - x^2y + x^2 - 2x + 3y)$

(a) 0 (b) 1 (c) 7 (d) -7

a. a

b. b

c. c

d. d

The correct answer is:
c

Question 9

Correct

Mark 1.00 out of 1.00

Remove flag

The domain of the function $f(x,y)=\frac{\sqrt{9-y^2}}{x^2+y^2-1} is$

- a. All the points in the xy-plane that lie on the line y = -3 or on the line y=3
- b. All the points in the xy-plane that lie between (or on) the lines $y=\pm3$ and not on the unit circle.
- c. All the points in the xy-plane that lie below the line y =-3 or above (or on) the line y= 3
- d. All the points in the xy-plane that lie between the lines $y=\pm3$ and not on the unit circle.
- e. All the points in the xy-plane that lie between the lines $y=\pm3$ except the points (1,0) and (0,1)

The correct answer is:
All the points in the xy-plane that lie between (or on) the lines $y=\pm3$ and not on the unit circle.

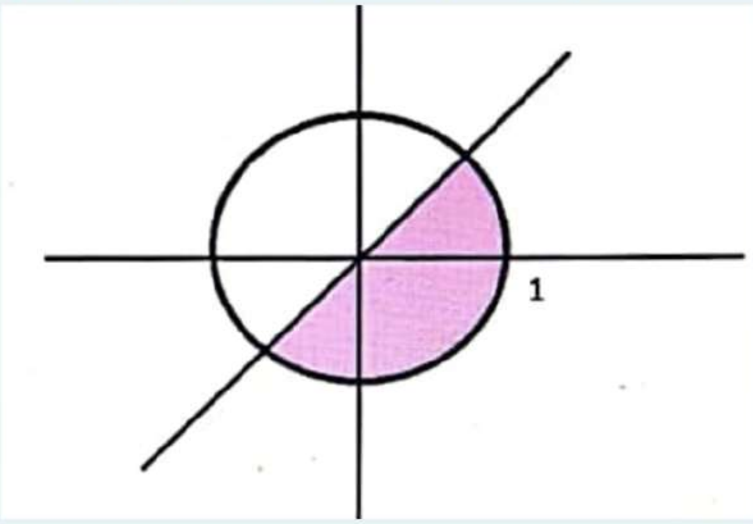
Question 10

Correct

Mark 1.00 out of 1.00

Remove flag

The following diagram represents the domain of the function



- a. $f(x,y)=\sqrt{x^2+y^2-1}+\sqrt{x-y}$
- b. $f(x,y)=\sqrt{1-x^2-y^2}+\sqrt{y-x}$
- c. $f(x,y)=\frac{1}{\sqrt{x^2+y^2-1}}+\sqrt{y-x}$
- d. $f(x,y)=\sqrt{1-x^2-y^2}+\sqrt{x-y}$
- e. $f(x,y)=\sqrt{x^2+y^2-1}+\sqrt{y-x}$

Question **6**

Correct

Mark 1.00 out of 1.00

Flag question

The domain of the vector - valued function given below :

$\vec{r}(t) = \frac{1}{e^t}i + \sqrt{3-t}j + \frac{5}{t}k$

a. $(-\infty, 3]$

b. $(-\infty, 0), (0, 3]$

c. $[3, \infty)$

d. $(-\infty, \infty)$

e. $(0, 3), (3, \infty)$

The correct answer is:
$(-\infty, 0), (0, 3]$

Question **7**

Correct

Mark 1.00 out of 1.00

Flag question

If $r'(t) = costi - sintj$ and $r(0) = i - j$ then $r(t) =$

a. <sin t -1 , -cos t >

b. <sin t +1 , -cos t-2 >

c. <sin t , -cos t >

d. <sin t + 1 , cos t-2 >

The correct answer is:
<sin t + 1 , cos t-2 >

Question **8**

Correct

Mark 1.00 out of 1.00

Remove flag

The range of hemisphere $f(x, y) = -\sqrt{25 - x^2 - y^2}$

a. $[0, 5]$

b. $[-5, 0]$

c. $[-5, 5]$

d. $[-1, 1]$

The correct answer is:
$[-5, 0]$

Question 4

Correct

Mark 1.00 out of 1.00

Flag question

Find the indefinite integral below

$\int(\frac{-12}{t^5}i+18t^2j+\frac{4}{\sqrt[5]{t}}k)dt =$

Do not include an arbitrary constant vector .

a. $\frac{3}{t^4}i+6t^3j-5\sqrt[5]{t^4}$k

b. $\frac{3}{t^4}i+6t^3j+5\sqrt[4]{t^5}$ k

c. $\frac{-3}{t^4}i+6t^3j+5\sqrt[5]{t^4}$ k

d. $\frac{3}{t^5}i+6t^3j+5\sqrt[5]{t^4}$ k

e. $\frac{3}{t^4}i+6t^3j+5\sqrt[5]{t^4}$ k ✓

The correct answer is:
$\frac{3}{t^4}i+6t^3j+5\sqrt[5]{t^4}$ k

Question 5

Correct

Mark 1.00 out of 1.00

Remove flag

$$\lim_{(x,y)\to(0,0)} \frac{e^{(-x^2-y^2)}-1}{x^2+y^2} =$$

a. does not exist

b. 4

c. -1 ✓

d. 1

e. 0

The correct answer is:
-1

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

Evaluate $\lim_{(x,y,z)\to\left(\frac{\pi}{2},0,1\right)} \frac{e^{2y}(\sin x+\cos y)}{1+y^2+z^2}$.

(a) 0 (b) 1 (c) 2 (d) -2

a. a

b. b

c. c

d. d

The correct answer is:
b

Question 2

Correct

Mark 1.00 out of 1.00

Remove flag

The parametric equations for the tangent line to the curve of $\vec{r}(t) = <t, t^2, t^3>$ at the point (3,9,27)

a. x=-1+t , y=1-2t , z= -1+3t

b. x=3+t , y=9+6t , z= 27+27t

c. x=1+t , y=1+2t , z= 1+3t

d. x=-2+t , y=4-4t , z= -8 +12 t

e. x=2+t , y = 4+4t , z=8+12 t

The correct answer is:
x=3+t , y=9+6t , z= 27+27t

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

The arc length of the curve $\vec{r}(t) = <2cost, \sqrt{5}t, 2sint>$ for $0 \leq t \leq 1 is$

a. 9

b. 15

c. 3

d. 12

e. 6

The correct answer is:
3