Mth301 275+ MIDTERMMCQS

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OCTANT

First octant (+, +, +) Formed by positive sides of the three axis.

Second octant (-, +, +) Formed by –ve x-axis and positive y and z-axis.

Third octant (-, -, +) Formed by –ve x and y axis with positive z-axis.

Fourth octant (+, -, +) Formed by +ve x and z axis and –ve y-axis.

Fifth octant (+, +, -) Formed by +ve x and y axis with -ve z-axis.

Sixth octant (-, +, -) Formed by –ve x and z axis with positive y-axis.

Seventh octant (-, -, -) Formed by –ve sides of three axis.

Eighth octant (+, -, -) Formed by - ve y and z-axis with +ve x-axis.

Quadrant

First quadrant (+, +)

Second quadrant (+, -)

Third quadrant (-, -)

Fourth quadrant (-, +)

1. *Every point in three dimensional space can be described by ------- coordinates*

Three

2. *What are the direction cosines for the line joining the points (1, 3, 2) and (7, -2, 3)?*

$\frac{6}{\sqrt{62}}, \frac{-5}{\sqrt{62}} \text{ and } \frac{1}{\sqrt{62}}$

3. *The angles which a line makes with positive x ,y and z-axis are known as ------------*

Direction angles

Plane parallel to xz-plane

4. *Domain of the function f (x, y, z)=* $\sqrt{x^2, y^2, z^2}$ *is*

Entire 3D-Space

5. *Suppose f (x, y) = xy− 2y where x2 = +3t 1 and y = 2t. Which one of the follo*
wing is true?

$\frac{df}{dt} = -16t - t$

6. *For a function f (x, y, z) , the equation ∂∂22xf +∂∂22yf +∂∂22zf =0 is known as ----------- --*

Laplace's Equation (Ali)

7. *Magnitude of vector* $\vec{a}$ *is 2, magnitude of vectorb is 3 and angle between them when placed tail to tail is 45 degrees. What is* $\vec{a}.\vec{b}$ *?*

4.2

8. *Let R be a closed region in two dimensional space. What does the double integral over R calculates?*

Radius of inscribed circle in R

9. *Two surfaces are said to be orthogonal at a point of their intersection if their normal at that point are ---------*

Perpendicular

10. *Two surfaces are said to intersect orthogonally if their normals at every point common to them are ----------*

In opposite direction

11. *Let R be a closed region in two dimensional space. What does the double integral over R calculates?*

Radius of inscribed circle in R

12. *Two surfaces are said to be orthogonal at a point of their intersection if their normals at that point are ---------*

Perpendicular

13. *Two surfaces are said to intersect orthogonally if their normals at every point common to them are ----------*

In opposite direction

14. *Let the function f x y(,) has continuous second-order partial derivatives) (fxx , fyy and fxy) in some circle centered at a critical point (x0, y0) and let D = fxx(x0, y0) fyy(x0, y0) − fxy2 (x0, y0) If D > 0 and fxx(x0, y0)*

Relative maximum at

15. *Let the function f x y(,) has continuous second-order partial derivatives (fxx , fyy and fxy) in some circle centered at a critical point (x0, y0) and let D = fxx(x0, y0) fyy(x0, y0) − fxy2(x0, y0) If D = 0 then ---------------*

No conclusion can be drawn.

16. *There is one-to-one correspondence between the set of points on co-ordinate line and __________.*

Set of real numbers

17. *Which of the following is associated to each point of three dimensional spaces?*

A natural Number

18. *All axes are positive in __________octant.*

First

19. *Let R be a closed region in two dimensional space. What does the double integral over R calculates?*

Radius of inscribed circle in R

20. *Two surfaces are said to be orthogonal at appoint of their intersection if their normals at that point are_________.*

Perpendicular

21. *By Extreme Value Theorem, if a function f (x y,) is continuous on a closed and bounded set R, then f (x, y) has both __________ on R.*

Absolute maximum and absolute minimum value

22. *15. Let the function f (x y,) has continuous second-order partial derivatives (fxx , fyy and f xy) in some circle centered at a critical point (x0, y0) and let D = fxx (x0, y0) fyy (x0, y0) − fxy 2 (x0, y0) if D > 0 and fxx (x0, y0) < 0 then f has __________ . Relative maximum at*

Relative maximum at

23. *Let the function f (x y,) has continuous second-order partial derivatives ¬ ¬ ¬ ¬ (fxx , fyy and f xy) in some circle centered at a critical point (x0, y0) and let D = fxx (x0, y0) fyy (x0, y0) − fxy 2 (x0, y0) if*

if D = 0 then _________.

No conclusion can be drawn.

24. *Every real number corresponds to -------------- on the co-ordinate line*

Infinite number of points

25. *The is one –to – one correspondence between the set of the points on co-ordinate and ---------*

Set of natural number

26. *Which of the following is associated to each point of three dimensional spaces?*

A natural number

27. *All axes are positive in-------octant*

First

28. *The spherical co-ordinates of a point are* $\left(\sqrt{3}, \frac{\pi}{3}, \frac{\pi}{2}\right)$ *when are its cylindrical co-ordinates?*

$$\left(\sqrt{3}\sin\frac{\pi}{3}, \frac{\pi}{2}, \sqrt{3}\cos\frac{\pi}{3}\right)$$

29. *Suppose f(x,y)= xy -2y*^{2} *Where x=3t +1 and y=2t which one of the following is true ?*

$$\frac{df}{dt} = -4t + 2$$

30. *Let w= f(x ,y ,z) and x =g(r, s) , y=h(r ,s), z=t(r , s) then by chain rule*

$$\frac{\partial w}{\partial r} =$$

$$\frac{\partial w}{\partial x}\frac{\partial x}{\partial r}\frac{\partial x}{\partial s} + \frac{\partial w}{\partial x}\frac{\partial y}{\partial r}\frac{\partial y}{\partial s} + \frac{\partial w}{\partial x}\frac{\partial z}{\partial r}\frac{\partial z}{\partial s}$$

31. *Is the function f(x,y) continuous at origin ? if not ,why?*

$$f(x,y)=\begin{cases}0 & if\ \ x\geq 0\ and\ \ y\geq 0\\ 1 & otherwise\end{cases}$$

F(x ,y) is not defined

32. Is the function f(x,y) continuous at origin ? if not ,why?

$$f(x,y)=\begin{cases}0 & if\ \ (x,y)\neq 0\\ 1 & if\ \ (x,y)=0\end{cases}$$

F(x, y) is not defined

33. Let R be a closed region in two dimensional spaces. What does the double integral over R calculate?

Radius of inscribed circle in r

34. Every real number corresponds to ____________ on the co-ordinate line.

Infinite number of points

35. There is one-to-one correspondence between the set of points on co-ordinate line and __________.

Set of natural numbers

36. Which of the following is associated to each point of three dimensional spaces?

A natural Number

37. All axes are positive in __________octant

First

38. By Extreme Value Theorem, if a function f (x y,) is continuous on a closed and bounded set R, then f (x y,) has both __________ on R.

Absolute maximum and absolute minimum value

39. Let x be any point on co-ordinate line. What does the inequality -3 < x < 1 means?

The set of all real numbers between -3 and 1

40. Which of the following number is associated to each point on a co-ordinate line?

A real number

41. Which of the following set is the union of set of all rational and irrational numbers?

Set of real numbers

42. ------------------ planes intersect at right angle to form three dimensional space.

Three

43. each point of domain, the function --------------

Is defined

44. Suppose $f(x, y)=xe^{3xy}$ Which one of the following is correct?

$$\frac{\partial f}{\partial x} = 3x^2 e^{xy} + x^3 y e^{xy}$$

45. Suppose $f(x, y)=xe^{3xy}$ Which one of the following is correct?

$$\frac{\partial f}{\partial y} = x^4 exy$$

46. *Suppose f (x, y) = 2xy where x = t 2 +1 and y = 3−t which one of the following is true?*

$\frac{\partial f}{\partial t} = -6t^2 + 12t - 2$

47. *I, j and k are unit vectors in the direction of x-axis, y-axis and z-axis respectively. Suppose that → a = 2i +5 j –k*

$\sqrt{30}$

48. *Which of the following are direction ratios for the line joining the points (1, 3, 5) and (2, −1, 4)?*

1, -4 and -1

49. *Which of the following is geometrical representation of the equation $y=x^2$, in three dimensional space?*

Parabola

50. *Which of the following is the interval notation of real line?*

(-∞ , +∞)

51. *What is the general equation of parabola whose axis of symmetry is parallel to yaxis?*

$y = ax^2 + bx + c \ (a \neq 0)$

52. *Which of the following is geometrical representation of the equation y=4, in three dimensional space?*

A point on y-axis

53. *Plane is an example of ---------------------*

Surface

54. *Function* $f(x, y) = \sqrt{y - x}$ *is continuous in the region --------- and discontinuous elsewhere.*

$X \le y$

55. *At critical points function can assume*

Zero value

56. *A plane can be perfectly determined by*

One point and normal vector

57. *Intersection of two straight lines is --------------*

Point

58. *Plane is a --------------- surface.*

Two-dimensional

59. *What are the parametric equations that correspond to the following vector equation?*

$\vec{r}(t) = \sin^2 t\,\hat{i} + (1-\cos 2t)\,\hat{j}$.

$X=\sin^2 t$, $y=1-\cos 2t$, $z=0$

60. *What are the parametric equations that correspond to the following vector equation?*

$r(t) = (2t-1)\,\hat{i} - 3\sqrt{t}\,\hat{j} + \sin 3t\,\hat{k}$

$X=2t-1$, $y= -3\sqrt{t}$, $Z=\sin 3t$

61. *What is the derivative of following vector-valued function?*

$\vec{r}(t) = (\cos 5t\,, \tan t\,, 6\sin t)$

$\vec{r}(t) = (-5\sin 5t\,, \sec^2 t\,, 6\cos t)$

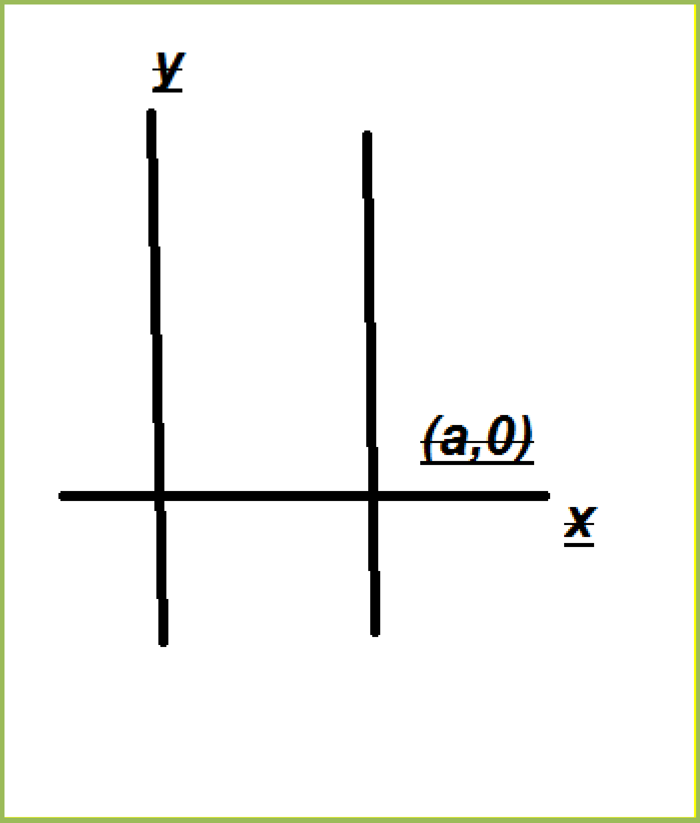
62. *The following differential is exact* $dz = (x^2 y + y)dx - xdy$

False

63. *Which one of the following is correct Wallis Sine formula when n is even and $n \geq 2$?*

$$\int_0^{\frac{\pi}{2}} \sin^n x dx = \frac{\pi}{2} \frac{(n-1)}{n} \frac{(n-3)}{(n-2)} \frac{(n-5)}{(n-4)} ------ \frac{5}{6} \frac{3}{4} \frac{1}{2}$$

64. *Match the following equation in polar co-ordinates with its graph. r a where a is an arbitrary cons t*



65. *If the equation of a curve, in polar co-ordinates, remains unchanged after replacing (r, θ) by (r, π−θ) then the curve is said to be symmetric about which of the following?*

Y-axis

66. *If the equation of a curve, in polar co-ordinates, remains unchanged after replacing (r, θ) by (-r, θ) then the curve is said to be symmetric about which of the following?*

Pole

67. *What is the amplitude of a periodic function defined by f(x)=* $\sin 3x$

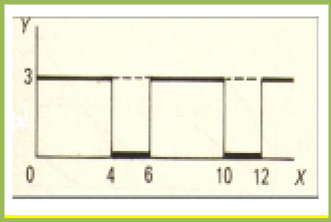
0

68. *What is the period of a periodic function defined by* $f(x) = 4\cos 3x$ *?*

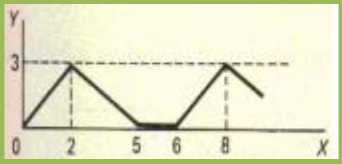
$\frac{2\pi}{3}$

69. *Match the following periodic function with its graph.*

$$f(x) = \begin{cases} 3 & 0 < x < 4 \\ 0 & 4 < x < 6 \end{cases}$$



70. *What is the period of periodic function whose graph is as below?*



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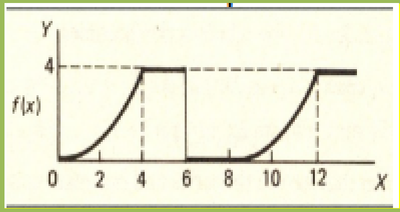
71. *What is the period of periodic function whose graph is as below?*



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72. *Let L denotes the Laplace Transform. If L { F(t)} = f (s) where s is a constant. And*

$\lim_{x\to\infty}\left(\frac{f(t)}{t}\right)$ *Exists then which of the following equation holds?*

$L\left(\frac{f(t)}{t}\right)=\int_s^{\infty} f(s)ds$

73. *Which of the following is Laplace inverse transform of the function f(s) defined by* $f(s)=\frac{3}{s-2}-\frac{2}{s}$ *?*

$3e^{2t}-2$

74. *Let(x_1,y_1,z_1) and (x_2,y_2,z_2) be any two points in three dimensional space. What does the formula* $\sqrt{(x_2-x_1)+(y_2-y_1)+(z_2-z_1)}$ *calculates?*

Midpoint of the line joining these two points

75. *Let the functions P (x, y) and Q (x, y) are finite and continuous inside and at the boundary of a closed curve C in the xy-plane. If (P dx +Q dy) is an exact differential then*

$\int_c^{\infty}(P\ dx\ + Q\ dy) =$

Zero

76. *What is Laplace transform of the function F (t) if F (t) = t?*

$L\{t\}=\frac{1}{s}$

77. *What is the value of* $L\{e^{5x}\}$ *if L denotes Laplace transform?*

$L\{e^{5x}\} = \frac{1}{s-5}$

78. *Evaluate the line integral* $\int_c (3x+2y)dx + (2x-y)$ *the line segment from (0, 0) to (0, 2).*

2

79. *Evaluate the line integral* $\int_c (2x+y)dx + (x^2-y)dy$ *where C is the line segment from (0, 0) to (2, 0).*

0

80. *Which of the following are direction ratios for the line joining the points (1, 3, 5) and (2, −1, 4)?*

2, -3 and 20

81. $if\ R = \{(X,Y)/0 \le X \le 2\ and\ 1 \le y \le 4\}, then \iint_R (6x^2 + 4xy^3)dx =$

$\int_1^4 \int_0^2 (6x^2 + 4xy^3)dxdy$

82. *-------------------- Planes intersect at right angle to form three dimensional spaces.*

Three

83. *If the positive direction of x, y axes are known then ------------ the positive direction of z-axis.*

Left hand rule tells

84. *What is the distance between points (3, 2, 4) and (6, 10, -1)?*

$\frac{7}{\sqrt{2}}$

85. *The equation ax +by+ cz + d = 0, where a, b, c, d are real numbers, is the general equation of which of the following?*

Plane page

86. *Domain of the function* $f(x, y) = \sqrt{y - x^2}$ *is*

$y \geq x^2$

87. *What is the period of a periodic function defined by f(x)=sinx/2?*

4π

88. *The graph of an odd function is symmetrical about ----------------*

Origin

89. *The path of integration of a line integral must be -------------*

Continuous and single-valued

90. *Sign of line integral is reversed when ------------*

Direction of path of integration is reversed.

91. *What is Laplace transform of the function f(t) if f(t) if f(t)=sin3t*

$l\{\sin 3t\} = \frac{3}{s^2 + 9}$

92. *π is an example of -----------*

Irrational numbers

93. *Straight line is a special kind of ----------------*

Curve

94. *An ordered triple corresponds to ----------- in three dimensional spaces.*

A unique point

95. *The angles which a line makes with positive x ,y and z-axis are known as ------------*

Direction angles

96. *Is the function f (x, y) continuous at origin? If not, why?* $f(x, y) = 4xy + \sin 3x^2 y$

F (x, y) is continuous at origin

97. *Two vectors are opposite vectors if they have __________.*

both (a) and (c)

98. *If two dogs are pulling a bone with force=20 Newtons in opposite direction, the resultant force is _________*

Zero Newton

99. *If the velocity (VI) of a car is 20m/s and velocity (V2) of bike is 40m/s, where both velocities are southward then which of the following would be the dot product of these velocities?*

-800

100. Limit of a function may exist at the point where it not defined

False

101. Limit of a function may exist at the point where it not defined False

102. A__________of continuous functions is continuous

All (a), (b) and (c)

103. A quotient of continuous function is continuous, expect where the denominator is ________

Zero

104. Intersection of two surfaces is a ______ in three dimensional space

Curve

105. Face the parabola ($y=ax^2 + bx + c$) is opening downward when

A<0

106. Which coordinate system uses two distances and one angle?

Cylindrical

107. *Which of the following is a two dimensional coordinate system* *Polar coordinate system*

108. *Limit of a function exist may exist at the point where it not defined* *False*

109. *The number square root of 2 is*
None of these /1.41

110. *A plane z=3 is ______ to XY plane.*
Parallel

111. *Value of the function f(x,y,z)=xyz at point (2,2,2) is*
8

112. *The number 3/11 is*

113. *In rectangular coordinate system the point (-3,2) is in*
Second quadrant

114. *Which of the following function is not the function of one variable?*
m=g(s) + content

115. *XZ- Plane consists of all points* *where X=0*

116. *Value of the function* $f(x,y,z)=x^2+ y^2 + z^2$ *at the point (0,1,0) is*
1

117. *If w=f(x,y,z) where x=g(t), z=h(T) then*

Dw/dt=@wdz/@xdt + @wdy/@ydt + @wdz/@zdt

118. *If f and its partial derivatives of the first, second and third orders are continuous on an open set, then at each point of the set_________*

@^{2}f/@y^2@x = @^{2}f/@y@x@y = @^{2}f/@x@y^2

119. All axis are negative in ----------- octant

Eight

120. In three dimensional space, intersection of two surfaces is a --------------

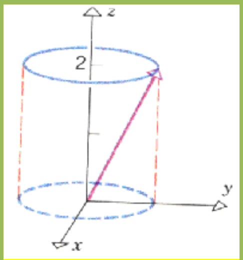
Plane

121. For a function $f(x,y,z)$, the equation $\frac{\partial^2 f}{\partial^2 x}+\frac{\partial^2 f}{\partial^2 y}+\frac{\partial^2 f}{\partial^2 z}=0$ is known as ----------

Laplace's Equation

122. Match the following vector-valued function with its graph.

$r(t)=\cos t\,\hat{i}+\sin t\,\hat{j}+2\hat{k}$ and $0\le t\le 2\pi$



123. What is the derivative of following vector-valued function?

$\vec{r}'(t)=\left(4t^3, \frac{1}{2\sqrt{t+1}}, \frac{-6}{t^3}\right)$

124. What is the derivative of following vector-valued function?

$\vec{r}(t) = \left(e^{t^2}, t^2, \sec 2t\right)$

$\vec{r}'(t) = \left(2te^{t^2}, 2t , 2\sec 2t \tan 2t\right)$

125. *The following differential is exact* $dz = (x^2 + y^2)\, dx - 2xy\, dy$

False

126. *Which one of the following is correct Wallis Sine formula when* n *is even and* $n \geq 2$ *?*

$$\int_0^{\frac{\pi}{2}} \sin^n x\, dx = \frac{\pi}{2} \frac{(n-1)}{n} \frac{(n-3)}{(n-2)} \frac{(n-5)}{(n-4)} -------- \frac{5}{6} \frac{3}{4} \frac{1}{2}$$

127. *If* $a > 0$*, then the equation, in polar co-ordinates, of the form* $r^2 = a^2 \cos 2\theta$ *represent which of the following family of curves?*

Leminscate

128. *Which of the following condition must be satisfied for a vector field* $\vec{F}$ *to be a conservative vector field?*

$\vec{F} = 0$

129. *If* $\lim_{(x,y,z) \to (x0,y0,z0)} f(x,y,z) = L_1$ *then*

$\lim_{(x,y,z)\to(x0,y0,z0)} cf(x,y,z) = cL_1$ *If c is constant*

130. *if* $\lim_{(x,y)\to(x0,y0)} F(x,y) = L_1$ $\lim_{(x,y)\to(x0,y0)} g(x,y) = L_2$

$\lim_{(x,y)\to(x0,y0)} f(x,y)/g(x,y) = L_1/L_2$; L_2 *not equal to 0*

131. *The partial derivative with respect to x of* $f(x,y) = 3x^2y+2y^2$ *is* ___________

$6xy + 2y^2$

132. *Spherical coordinate @ is related to the cylindrical coordinate as*_____

@=@

133. *How many real numbers exist between 1 and 5*

Infinity

134. *Value of the function f(x,y,z)= square root* $x^2+y^2+z^2$ *at the point (0,3,0) is*_______

3

135. *The number pi is.*

Irrational

136. *Length of magnitude of a unit vector is* _______

1

137. *The product of continuous functions is continuous True*

138. *F(x,y,z)= square root* $x^2+y^2+z^2$

[0, +infinity

139. *The product of continuous function is continuous True*

140. *Range of the function* $y=3x^2-2$ *is*

All real numbers with y ≥ -2

141. *if the partial derivative (w,r,t 'x' or 'y') at any point on the surface "z=f(x,y) is zero, than tangent plane at that point will be _______ to XY- plane*

parallel

142. *Two vectors A and B are _______ if and only if their scalar is equal to zero. Perpendicular*

143. *The partial derivative with respect to x of* $f(x,y)= 3x^2y + 2y^2$ *is __________*
6xy

144. *The chain rule can be taken as the derivative of the order function and multiplying it items the derivative of the ______________*

The inner function

145. *Two vectors are opposite vectors if they have____________*

Both (A) and (c)

149. Magnitude of the force vector F = -30 Newton, is ___________

30 ewton

150. Two vectors A and B are ____________ if and only if their social product is equal to zero

Perpendicular

151. Which of the following should be the scalar multiple (A) such that force ; F_1=20N and F_2 = -60N satisfy the

A=-1/3

152. A zero vector has magnitude equal to zero and _________

Direction Arbitrary

153. The chain rule states that the derivative of f(g(x)) is ______

f(g(x))-g(x)

154. The order of differentiation in an nth order partial derivative can be change without affecting the final result whenever the function and all its partial derivatives of order less than or equal to 'n' are__________

Continuous

155. For which of the following values of 'y' the partial derivative of
z=2/y(x-1) EXIST
R-{ 1,0}

156. *To find the limit of $f(x,y) = x^2+y/x^2$ at (0,0) if we approach (0,0) through the line x-axis, we get the value*

1

157. *Value of money is an example of ___________*
Quantity Scalar

158. *IF y = sin t and t= e^{xu} then which of the following is partial derivative of w.r.t.x*

ut cost

159. *The function z=F(x,y) represents a*

__________ in space Line

160. *If two dogs are pulling with force=20Newtons in opposite direction, then the resultant force is__________*

Zero Newton

161. *Limit of a function may exist at the point where*

it not defined False

162. *A_________ of continuous function is continuous*

All options

163. *The function e^{xy} is continous*

In whole region of xy plane

164. *A quotient of continuous function is continuous, expect where the denominator is _____________*

Zero

165. *if the partial derivative (w,r,t 'x' or 'y') at any point on the surface "z=f(x,y) is zero, than tangent plane at that point will be parallel to __________*

XY plane

166. *Two determine the position of any object in a room we need how many coordinates.*

3(3 dimension)

167. *Which of the following is a two dimensional coordinate system*

Cylindrical coordinate system

168. *Which of the following is the representation of spherical coordinates*

(p, θ, φ)

169. *In cartesian coordinate system all axes are at _____degree to each other*

90

170. *intersection of two surfaces is a ____ in three dimensional space*

Curve

171. *The function* $f(x,y,z) = (x^2 + yz)/ (xy+z)$ $Xy+z=0$

172. *For which of the following values of 'y' the partial derivative of z=2/y(x-1)*

R-{1,0}

173. *YZ- plane of all points where*

$X=0$

174. *Domain of the following function y= x/ 3x-4*

All real number

175. *Cylindrical coordinate system is used to the position of any object is Any dimension*

176. *To express the location of any object on earth which coordinate system is used*

Cylindrica coordinate system

177. *Face of the parabola (y-ax^2 + bx+ c) is opening downward when A<0*

178. *Cylindrical coordinate "y" is related to the Cartesian coordinate as*

R= cos0

179. *Which coordinate system uses two distances and one angle?*

Rectangular

180. *Which of the following function is not the function of one variable y=*

f{x,y}

181. *Which of the following is a two dimensional coordinate system*

Cylindrical coordinate system

182. *The chain rule can be taken as the derivative of the outer function and multiplying it times the derivative of the _______*

The inner function

183. *The rule is called the chain rule because we use it to take derivatives of*

____ by changing together their derivative

Composite function

184. *The partial derivative at any point on the surface represents the slope of tangent __________ at that point*

Line

185. *Partial derivative* $f(x,y) = x^2+y^2+xy$ *with respect to y is*

None options

186. Spherical coordinate 0 is related to the cylindrical coordinate as __________

@=@

187. Which of the following is a two dimensional coordinate system Polar coordinate system

188. Which coordinate system uses two distance and one angle?

Cylindrical

189. A plane z=3 is _____ to XY-plane

Parallel

190. Which of the following function is not the function of one variable

M=g(s)+ constant

191. XZ-plane consists of all points where

x=0

192. A zero vector has magnitude equal to zero and _____ direction No

193. Which condition is necessary for a function to be continuous at any point (x,y)

All options

194. If we = x + y while x=r + sandy = r-s then which of the following is partial derivative of w is w.r.tr?

1

195. *If g and h are continuous functions of one varialble, then f(x,y) = g(x) h(y) is a ___________ function of x and y.*

Continuous

196. *The function of the form* $f(x,y) = 3x^2x^5$ *is ________ in the domain continues everywhere*

197. *If the velocity (v1) of a car is 20m/s eastward and velocity (v2) of bike is 40 m/s northward then which of the following would be the dot product of these velocities*

-800

198. *Suppose that z=(x,y) is a function of two variable x and y, then partial derivative of function z with respect to x represents the ______ of the tangent of the curve*

None OPTIONS

199. *The product of continuous functions is continuous*

True

200. *The function* e^{xy} *is continuous In whole region of*

xy plane

201. *The partial derivative of* $f(x,y)=x^2y^{-2}$ *with respect to x is ________*

x2e-y

202. Let $f(x,y) = e^{2y}\cos x$ then $f_x(x,y)=$

$e^{2y} \sin x$

203. *If y=f(x) and x=g(t) then by chain rule*

dy/dt=

*Dy/dx*dx/dt*

204. *The partial derivative with respect to y of f(x,y) = x^2+2y^2+xy is ________*

4y+x

205. *The mixed 2nd order partial derivatives of z=xy is equal to*

xy

206. *Scalar Triple Product of vectors A=[1,0,0], B=[0,1,0] and C=[0,0,1] is---------*

1(not sure)

207. *he order of differentiation in an nth order partial derivative can be change without affecting the final result whenever the function and all its partial derivatives of order less than or equal to 'n' are ----------.*

Differentiable (not sure)

208. *Let f(x,y)be a function with continuous second order partial derivatives in some circle centered at a critical point(x0,y0) and, letD=fxx(x0,y0)fyy(x0,y0)−[fxy(x0,y0)]2IfD=0,then−−−−−−−−−*

f(x,y)has a saddle point at (x0,y0). (not sure)

209. *Geometrically the magnitude of Scalar Triple Product gives the------------.*

Volume of Parallelepiped

210. *Value of money is an example of -------- quantity*

Scalar

211. Let f(x,y)be a function with continuous second order partial derivatives in some circle centered at a critical point(x0,y0) and, LetD=fxx(x0,y0)fyy(x0,y0)−[fxy(x0,y0)]2. IfD>0andfxx(x0,y0)>0 ,then−−−−−

f(x,y)has a saddle point at (x0,y0). (not sure)

212. Two vectors of magnitudes [4,5] making an angle of 30degree, then the area of parallelogram associated with these two vectors is ---------

Square units

213. For the function z=f(x, y, z),the total differentialdzis equal to

dw = df = fx(x, y, z)dx +fy(x, y, z)dy +fz(x, y, z)dz

214. For the function z=f(x, y, z),the total differentialdzis equal to

dz = df = fx(x, y)dx + fy(x, y)dy

215. Which condition is necessary for a function to continuous at any point (x,y)

All of the given

216. The function e^{xy} is continuous

In whole region

217. To find limit of f(x, y)= $\frac{x^2+y}{x^2}$ at (0,0) ,if we approach(0,0) through the line x-axis we the value of the

1

218. Can we evaluate the following integral in given order of the integration

$$\int_{}^{\frac{1}{2}}\int_{}^{1} e^{y^2} .$$

No

219. *Cross product of the two vector non zero vector results into a vector lying ---.*
In the plane perpendicular

220. *Value of the money is an example of the ----- quantity*
Scalar

221. *In the following equation of the plan a(x-x_0) +b(y-y_0) +c(z-z_0) $x_{0,}$ y_0 and z_0 are coordinates of*
a vector perpendicular

222. *Let a function $f(x ,y)=x^3+(17-x-y^2)^2$ THEN F_{xx}=---------*
6x +1

223. *Two surfaces are said to be intersect orthogonally if they are orthogonal at – common to them*

Every point

224. *The function z=(x ,y) of the variables x and y represents a --- in space*
Surface

225. *What is the absolute maximum value of the function below on the interval [-3, 0]*

$$f(x)=\sqrt[5]{(x+1)^2+\frac{2x}{5}}$$

1

226. *All continuous function have a minimum and maximum value*
False

227. *if The function f is continuous on the close interval [a, b] ,then f has on absolute maximum value and an absolute an minimum value on [a, b]*
Extreme valued theorem

228. Area of the integral is equal to --------

½ (base)*(altitude)

229. The rule is called the chain rule because we use it to take derivative of ------by chaining to together their derivative .

Composite functions

230. Gradient of a scalar function always results in a ---- function.

Vector

231. A differentiable function of two variables might have a------ point.

Saddle

232. After reversing the order of the limits of the $\int_0^3 \int_{x^2}^9 y \cos x \, dydx$ we get ----------

$\int_0^9 \int_0^{\sqrt{9}} y \cos x \, dydx$

233. The $\int_0^1 e^{y^2} dx$ =

e^{y^2}

234. Spherical coordinate 'z' is related to the cylinder coordinate as

$z = p \cos \wp$

235. The gradient of a scalar function $\wp$ is defined as

$grad \wp = \Delta \wp$

236. The absolute maximum is also called local maximum

False

237. *The function* $f(x)=2x-x^2$ *has a critical point at ---------*

1

238. *If the derivate (w.r.t 'x' or 'y') at any point on the surface : z =f(x, y) is infinity then tangent plan at that at the point will be perpendicular to--------*

Xy-plan

239. $\int_0^{\ln 6}\int_0^{\ln 3} f(x,z)dxdy = \int_0^{\ln 3}\int_0^{\ln 6} f(x,z)dydx$

True

240. *Which coordinate system uses two distances and one angle?*

Cylindrical

241. *For which of the following values of 'y' the partial derivative of* $z=\dfrac{2}{y(x-1)}$

R-{0}

242. $\int_0^{10} f(X^3Y+Y^2)dy$ ---------------------

$50x^3+\dfrac{1000}{3}$

243. *If two of the vector are collinear among three among three non-zero vectors then their scalar triple product is-------------*

1

244. $\int_0^1\int_0^1 dxdy$ ------------------------

0

245. *Value of the function f(x,y,z) =xy at the point* $(1,x^3,y^2)$

X^2+y^2

246. *If the vector (v) of the a car is 20m/s east-north and making angle 60 degree with east then the component f the velocity in the east is ----------*

10

247. *Cross product of the unit vectors 'I' and 'j' is ---- whenever the sense of the rotation is form of 'j' to 'I' is*

K

248. *if the rectangular components of a vector in xy-plan are [3,4] then the magnitude of the vector is ---------------*

12

249. *if f is a function of x and then the gradient of f is define as*

250.

251. *An ordered pair corresponds -----------on the plane*

A unique point

252. *Plane is the special type of --------------*

Surface

253. *There is one to one correspondence between the set of points on a coordinate line and--------------------*

Set of real numbers

254. *What is general equation of parabola whose axis is symmetry is parallel to y-axis?*

$x = ay^2 + bx + c (a \neq 0)$

255. *If the spherical coordinates of a points $(2, \frac{\pi}{4}, 0)$, then z-coordinates in rectangular coordinate system is----------------------*

$\sqrt{2}$

256. *The function* $z = \frac{1}{\sqrt{x+y}}$ *is discontinuous at origin because at the point(0,0), its ----------------*

Approaches towards infinity

257. *The function* $f(x,y) = \sqrt{y-x}$ *is continuous in the region ---------------- and discontinuous elsewhere*

$x > y$

258. *Every differentiable function is always-------*

Continuous

259. *The vector* $a^r \times b^1$ *is------------------- to both* a^r *and* b^1

Parallel

260. *Gradient of a scalar function always result in a ------------------ function.*

Vector

261. *The direction of gradient of any point on a surface is------------- to the tangent plane at that point.*

Perpendicular

262. *For a function* $z = f(x,y)$*,the total differential is defined as;*

$dz = f_x(x,y)dx + f_y(x,y)dy$

263. *For a function* $f(x,y)$ *to have both absolute maximum and minimum, it must be continuous on-----------------*

A closed and bounded

264. *The volume of parallelepiped with dimension x, y and z is --------------------*

V=xyz

265. Let x be the length, width and height of a cube. The area of bottom will be

$A = x^3$

266. A double integral and integrated become identical provided that the integrant -------- over the given rectangular region.

Bounded

267.