372 PU M Sc Mathematics

1 of 100
118 PU_2016_372_E
If A and B are any two sets, then A ∪ (A ∩ B) is equal to:-

- B^C
- A
- B
- A^C

2 of 100
100 PU_2016_372_E
$\int x \tan^{-1} x dx$ = ?

- $\frac{1}{2}[(x^2+1)\tan^{-1}x]$
- $(x^2 + 1) \tan^{-1} x - x$
- 0
- $\frac{1}{2}[(x^2+1)\tan^{-1}x - x]$

3 of 100
187 PU_2016_372_E
The Integrating factor for the differential equation $y' + \frac{x}{1+x} y = 1 + x$ is:-

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

4 of 100
105 PU_2016_372_E
The separation of real and imaginary parts of the expression tan(x + iy) is:-

- $\frac{\sinh 2x}{\cosh 2x + \cos 2y} + i\frac{\sin 2y}{\cosh 2x + \cos 2y}$
- $\frac{\sin 2x}{\cos 2x - \cos 2y} + i\frac{\sin 2y}{\cos 2x + \cos 2y}$
- $\frac{\sinh 2x}{\cos 2x - \cos 2y} + i\frac{\sin 2y}{\cos 2x + \cos 2y}$

- $\frac{\sin 2x}{\cosh 2x - \cos 2y} + i\frac{\sin 2y}{\cosh 2x + \cos 2y}$

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139 PU_2016_372_E

If A is an orthogonal matrix then det(A) is equal to:-

- 1 or -1
- 0 or 1
- zero always
- -1 or 0

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121 PU_2016_372_E

The function y(x) which is not a solution of the equation $x^2y'' + xy' - y = 0$ is given by y(x) =

- 0
- 1
- x
- x^{-1}

7 of 100

101 PU_2016_372_E

$$\int_0^{\pi} \cos^{2n+1} x dx = ?$$

- $2\pi + 1$
- $\frac{\pi}{2n+1}^{2n+1}$
- 0
- $\frac{\pi}{2}^{2n+1}$

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135 PU_2016_372_E

The eigenvalues of the matrix $\begin{bmatrix} a & b \\ -b & a \end{bmatrix}$, where a and b are real numbers, are real when:-

- b = 0
- a = b = 0
- a and b are arbitrary

- a = 0

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128 PU_2016_372_E

A solution of the equation $y'' + 8y' + 16y = 0$ is given by $y(x) =$

- x
- xe^{-2x}
- xe^{-x}
- xe^{-4x}

10 of 100

148 PU_2016_372_E

If m = n, the system AX = 0 with m linear equations and n unknowns has:-

- no solution
- unique solution if det(A)≠0
- unique solution
- non zero solution

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142 PU_2016_372_E

Which one of the following is not a solution of the equation $(y')^2 - xy' + y = 0$?

- y = x
- y = 2x - 4
- y = x-1
- y = 3x - 9

12 of 100

140 PU_2016_372_E

The graph of the function that is the solution of the problem $x\,y' + y = 0,\ y(1) = 1$ is:-

- a Parabola
- a straight line
- a hyperbola
- an ellipse

13 of 100

103 PU_2016_372_E

If $f(x) = f(a+x)$, *then* for any positive integer n, $\int_0^{na} f(x)dx = ?$

- $n\int_0^a f(x)dx$
- $\int_0^{na} f(x)dx$
- 0
- $\int_0^{na} f(a+x)dx$

14 of 100

129 PU_2016_372_E

A solution of the equation $y'' - 2y' + 10y = 0$ is given by $y(x) =$

- sinx + cosx
- sinx
- $e^x \cos 3x$
- cosx

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130 PU_2016_372_E

An eigenvector of the matrix $A = \begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$ with eigenvalue $\lambda_1 = 1$ is given by $\underset{x}{\rightarrow} =$

- $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$
- $\begin{bmatrix} 1 \\ 0 \end{bmatrix}$
- $\begin{bmatrix} 0 \\ 1 \end{bmatrix}$
- $\begin{bmatrix} 1 \\ -1 \end{bmatrix}$

16 of 100

133 PU_2016_372_E

If λ is an eigenvalue of an unitary matrix then:-

- $\lambda = 1$ always
- λ is any real number
- $|\lambda| = 1$
- $\lambda = 0$ always

17 of 100

114 PU_2016_372_E

$$L^{-1}\left[\log\left(\frac{s+1}{s+2}\right)\right] = ?$$

- $\frac{-e^{-t}+e^{-t}}{t}$
- $\frac{-e^{-t}+e^{-2t}}{t}$
- $\frac{-e^{t}+e^{2t}}{t}$
- $\log\left(\frac{-e^{-t}+e^{-2t}}{t}\right)$

18 of 100

134 PU_2016_372_E

If λ is a real eigenvalue of a skew – Hermitian matrix then:-

- $\lambda = 0$
- λ can be any real number.
- $\lambda = 1$
- $\lambda = -1$

19 of 100

213 PU_2016_372_E

Let f′ and g′ be continuous functions on [a, b]. Then $\int_a^b f(x)\, g'(x)\, dx + \int_a^b f'(x) g(x)\, dx$ = f(b) g (b) $\oplus$ f(a) g(a), where $\oplus$ is:-

- x
- -
- +
- ÷

20 of 100

145 PU_2016_372_E

Identify the function that is not a solution of the Laplace's equation.

- f = xy
- $f = x^2 + y^2$
- $f = x^2 - y^2$
- arctan (y/x)

21 of 100

127 PU_2016_372_E

A solution of the equation $y'' - 4y' + 4y = 0$ is given by $y(x)$ =

- x

- e^{2x}
- xe^{x}
- $x^{2}e^{2x}$

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138 PU_2016_372_E

The geometric multiplicity of the eigenvalue λ=-3 of the matrix $\begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$ is:-

- 1
- 2
- 0
- 3

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132 PU_2016_372_E

The geometric multiplicity of the eigenvalue $\lambda = 1$ of the matrix $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ is:-

- 1
- 3
- 2
- 0

24 of 100

150 PU_2016_372_E

Which is false?

- $\det(A^{-1}) = 1/\det(A)$
- $\det(AB) = \det(A)\ \det(B)$
- rank(A) = order(A), if det(A) = 0
- $\det(A^{T}) = \det(A)$

25 of 100

197 PU_2016_372_E

Let $f(x) = \begin{cases} (x-1)\sin\left(\frac{1}{x-1}\right) & if \quad x \neq 1 \\ 0 & if \quad x = 1 \end{cases}$. Then which of the following is true?

- f is neither differentiable at $x = 0$ nor at $x = 1$
- f is differentiable at $x = 0$ and at $x = 1$

- f is differentiable at $x = 0$ but not at $x = 1$.
- f is differentiable at $x = 1$ but not at $x = 0$.

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125 PU_2016_372_E

A solution of the equation $x^2y'' - 3xy' + 4y = 0$ is given by $y(x) =$

- $x \log x$
- x
- $x\,e^x$
- x^2

27 of 100

115 PU_2016_372_E

$L[e^{-t} \sin 2t] = ?$

- $\frac{2}{s^2+1}$
- $\frac{1}{(s+1)^2+1}$
- $\frac{2}{(s+1)^2+1}$
- $\frac{2}{(s+1)^2}$

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116 PU_2016_372_E

The general solution of the equation $\frac{d^3y}{dx^3} - 3\frac{d^2y}{dx^2} + 3\frac{dy}{dx} - y = 0$ is $y = ?$

- $e^x(c_1x^2 + c_2x + c_3)$
- $e^x(c_1x^2 + c_2)$
- $e^{2x}(c_1x^2 + c_2x + c_3)$
- $e^x(c_1x^2 + x(c_2 + c_3))$

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Copy of 107 PU_2016_372_E

The equation of the plane through (1,2,3) parallel to the plane 4x+5y-3z+7=0 is:-

- 4x+5y-3z = -7
- 4x+5y-3z = 2
- 4x+5y-3z = 5

- 4x+5y-3z = 1

30 of 100

141 PU_2016_372_E

The solution of the initial value problem y′=-2xy, y(0)=2 is:-

- $2\,e^{-x^2}$
- $2\,e^{-x}$
- $2\,e^{-2x^2}$
- $\frac{e^{-x^2}}{2}$

31 of 100

210 PU_2016_372_E

Let A, B and C be finite sets. Then |A| + |B| +| C| - |A ∩B| - |B ∩C|-|C ∩A| + |A ∩B ∩C| is:-

- |A∩(BUC)|
- |A U (B ∩C)|
- |AUBUC|
- |(AUB)-C)|

32 of 100

126 PU_2016_372_E

A solution of the equation $y'' + 8y' + 16y = 0$ is given by $y(x) =$

- e^{-4x}
- e^{-2x}
- e^{-x}
- e^{-3x}

33 of 100

112 PU_2016_372_E

$\int \log(1+x^2)dx = ?$

- $\frac{1}{n-1}\log\left(1+x^n\right)$
- $\log\left(1+x^n\right)$
- $\frac{1}{n}\log\left(1+x^n\right)$

- $x\log(1+x^{x})-2x+2\tan^{-1}x$

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120 PU_2016_372_E

A particular solution of the equation y'' + y = sin *x* is given by:-

- cos*x*
- sin *x*
- $\frac{-x\sin x}{2}$
- $\frac{-x\cos x}{2}$

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119 PU_2016_372_E

The roots of the auxiliary equation of the differential equation $\frac{d3y}{dx^3}+\frac{d^2y}{dx^2}+\frac{dy}{dx}+y=0$ are:-

- (i, 1, -1),
- (i, -1, 1),
- (i, 0, -1)
- (i, -i, -1)

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202 PU_2016_372_E

Consider the following statements:

(i) For each positive integer n, there exists a cyclic group of order n
(ii) For each positive integer n, there exists a nonabelian group of order n
Then:-

- (ii) is true but (i) is false
- Both (i) and (ii) are true
- Both (i) and (ii) are false
- (i) is true but (ii) is false

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193 PU_2016_372_E

Let f and g be functions such that f + g is a continuous function then

- g may be discontinuous but f must be continuous
- Both f and g may be discontinuous
- f may be discontinuous but g must be continuous
- f and g are continuous

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194 PU_2016_372_E

Let $f: R \to R$ be any function. Define $g: R \to R$ by $g(x) = |f(x)|$ for all $x \in R$. Then g is:-

- On to if f is onto
- One-one if f is one-one
- Discontinuous if f is discontinuous
- Continuous if f is continuous

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147 PU_2016_372_E

If the position vector of a particle is given by r(t) = cos(t) I + sin(t) j where I and j are unit vectors along x,y coordinate axes then the acceleration vector is equal to:-

- - r/2
- r/2
- r
- - r

40 of 100

149 PU_2016_372_E

Let AX = b be a system of m-linear equations in n unknowns. Then it is homogeneous if:-

- $b \neq 0$ in R^m
- $b \neq 0$ in R^n
- $b = 0$ in R^n
- $b = 0$ in R^m

41 of 100

113 PU_2016_372_E

$$L^{-1}\left[\frac{1}{(s+3)^4}\right] = ?$$

- $\frac{t^3}{3!}e^{-3t}$
- $t^3 e^{-3t}$
- $\frac{t^3}{3!}e^{3t}$
- e^{-3t}

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131 PU_2016_372_E

An eigenvector of the matrix $A = \begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix}$ with eigenvalue $\lambda_1 = 1 + i$ is given by $\vec{x}$ =

- $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$
- $\begin{bmatrix} 1 \\ -i \end{bmatrix}$
- $\begin{bmatrix} 1 \\ i \end{bmatrix}$
- $\begin{bmatrix} i \\ i \end{bmatrix}$

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123 PU_2016_372_E

$y = x^m$ is not a solution of the equation $x^3y^{(4)} + 8x^2y''' + 8xy'' - 8y' = 0$ when m =

- 1
- 2
- -1
- 0

44 of 100

122 PU_2016_372_E

The Euler equation $x^2y'' + xy' - y = 0$ can be transformed into an equation with constant coefficients by the transformation z =

- Log x
- *x*
- x^2
- e^x

45 of 100

117 PU_2016_372_E

The general solution of the equation $\frac{d^5y}{dx^5} + \frac{d^3y}{dx^3} = 0$ is $y = ?$

- $c_1e^{-x} + c_2e^{x} + (c_3 + c_4x + c_5x^2)e^{3x}$
- $c_1e^{-x} + c_2e^{x} + (c_3 + c_4x + c_5x^2)e^{0x}$
- $c_1e^{-x} + c_2e^{x}$
- $c_1e^{2x} + c_2e^{x} + (c_3 + c_4x + c_5x^2)e^{0x}$

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137 PU_2016_372_E

The geometric multiplicity of the eigenvalue $\lambda=5$ of the matrix $\begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$ is:-

- 2
- 0
- 1
- 3

47 of 100

209 PU_2016_372_E

If $A=\left\{\frac{m+n}{mn} \mid m,n \in N\right\}$ then:-

- lub A =1 and glb A =0
- lub A =0 and glb A = 2
- $lub\, A = 1$ and $glb\, A = \frac{1}{2}$
- lub A =2 and glb A =0

48 of 100

151 PU_2016_372_E

A is orthogonel, then det(A) is:-

- -1
- 1
- 0
- +1 or -1

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136 PU_2016_372_E

An eigenvector of the matrix $\begin{bmatrix} 1 & 1 \\ -1 & 1 \end{bmatrix}$ is:-

- $\begin{bmatrix} 2 \\ -i \end{bmatrix}$
- $\begin{bmatrix} 0 \\ 0 \end{bmatrix}$
- $\begin{bmatrix} 1 \\ -2i \end{bmatrix}$

- $\begin{bmatrix} 1 \\ -i \end{bmatrix}$

50 of 100

107 PU_2016_372_E

The equation of the plane through (1,2,3) parallel to the plane 4x+5y-3z+7=0 is:-

- 4x+5y-3z = 5
- 4x+5y-3z = 2
- 4x+5y-3z = -7
- 4x+5y-3z = 1

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211 PU_2016_372_E

The value of $\lim_{n\to\infty} \frac{n^3}{2^n}$ is:-

- ∞
- 1
- $\frac{1}{2}$
- 0

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108 PU_2016_372_E

The equation of the sphere whose centre is (2, -3, 4) and radius 5 units is:-

- $x^2+y^2+z^2-x-6y-8z+4=0$
- $x^2+y^2+z^2-4x-6y-8z+1=0$
- $x^2+y^2+z^2-4x+6y-8z+4=0$
- $x^2+y^2+z^2-4x-6y-8z=0$

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110 PU_2016_372_E

The rank of the matrix $\begin{bmatrix} 1 & 2 & 1 & 2 \\ 1 & 3 & 2 & 2 \\ 2 & 4 & 3 & 4 \\ 3 & 7 & 4 & 6 \end{bmatrix}$ is:-

- 4
- 2
- 1

- 3

54 of 100

109 PU_2016_372_E

The eigen values of $\begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$ are:-

- (1, 5, 5)
- (1, 1, 5)
- (1, 1, 1)
- (1, 1, 0)

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102 PU_2016_372_E

$\int_0^{2a} f(x)dx = ?$ if $f(2a-x) = -f(x)$:-

- 0
- a^2
- a
- 2a

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124 PU_2016_372_E

A solution of the equation $x^2y'' - \frac{3}{2}xy' - \frac{3}{2}y = 0$ is given by $y(x) =$

- $e^{\frac{x}{2}}$
- $\sin x$
- $e^{\frac{-x}{2}}$
- $x^{\frac{-1}{2}}$

57 of 100

111 PU_2016_372_E

$\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx = ?$

- $\frac{\pi}{4}$
- $\frac{\pi}{2}$
- π^2

- 0

58 of 100

143 PU_2016_372_E

Integration of the equation yy' = - x gives the

- hyperbola xy =1
- line x+ y =1
- parabola x = y^2
- circle x^2 +y^2 =1

59 of 100

106 PU_2016_372_E

The distance between the parallel planes 2x-3y+6z+12=0 and 2x-3y+6z-2=0 is:-

- 0
- 2
- 1
- 12

60 of 100

104 PU_2016_372_E

$Lim_{x\to\infty} \sinh^{-1} x - \log x = ?$

- 0
- log 1
- log 2
- log($\sin^{-1}x$)

61 of 100

223 PU_2016_372_M

$\int_0^\infty \int_0^\infty \frac{e^{-y}}{y}$ dx dy is:-

- 1/2
- 1
- 0
- 2

62 of 100

220 PU_2016_372_M

Let p be a prime number. Then (p – 1)! + 1 is divisible by

- p^2

- p
- p + 1
- p - 1

63 of 100

231 PU_2016_372_M

Three concurrent lines with direction cosines (l_1, m_1, n_1), (l_2, m_2, n_2) and (l_3, m_3, n_3) are coplanar if:-

- $l_1 l_2 + m_1 m_2 + n_1 n_2 = 1$
- $l_1 m_2 = l_2 m_1$
- $l_1 l_2 + m_1 m_2 + n_1 n_2 = 0$
- $\begin{vmatrix} l_1 & m_1 & n_1 \\ l_2 & m_2 & n_2 \\ l_3 & m_3 & n_3 \end{vmatrix} = 0$

64 of 100

230 PU_2016_372_M

What is the angle made by the two lines joining (3,1,-2), (4,0,-4) and (4,-3,3), (6,-2,2):-

- $\frac{\pi}{2}$
- $\frac{\pi}{3}$
- π
- 0

65 of 100

255 PU_2016_372_M

There exist zero-divisors in:-

- the ring of real matrices of order n
- the ring of integers
- the ring of real numbers
- the ring of integers modulo a prime p

66 of 100

249 PU_2016_372_M

A sphere is inscribed in the tetrahedron whose faces are x=y=z=0, 2x+6y+3z=14. Then the radius of the sphere is:-

- 7/6

- $\sqrt{\frac{7}{9}}$
- 7/9
- 7

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243 PU_2016_372_M

sinh 3x

- $3\sinh x + 4\sinh^3 x$
- $2\sinh x - 4\sinh^3 x$
- $4\sinh x - 3\sinh^3 x$
- $4\sinh x + 3\sinh^3 x$

68 of 100

235 PU_2016_372_M

The radius of the sphere $ax^2 + ay^2 + az^2 + 2ux + 2vy + 2wz + d = 0$ is:-

- u
- d
- $\sqrt{u^2 + v^2 + w^2 - d}$
- $\sqrt{\frac{u^2}{a^2} + \frac{v^2}{a^2} + \frac{w^2}{a^2} - \frac{d}{a}}$

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232 PU_2016_372_M

What is ratio made by the point (-6,5,4) on the line joining the points (-4,3,2) and (-10,9,8)?

- 1:2
- 3:1
- 2:1
- 1:3

70 of 100

221 PU_2016_372_M

$\int_0^{\frac{\pi}{2}} \log(\sin x)\, dx$ *is* :-

- $\frac{\pi}{2} \log x$
- $\frac{\pi}{2} - \log(\frac{1}{2})$
- $\frac{\pi}{2} + \log(\frac{1}{2})$

- $\frac{\pi}{2}\log(\frac{1}{2})$

71 of 100

240 PU_2016_372_M

$\lim_{\theta \to 0} \frac{\tan\theta + \sec\theta - 1}{\tan\theta - \sec\theta + 1} =$

- 1
- 2
- 1/2
- 0

72 of 100

227 PU_2016_372_M

Consider the following statements.

(i) Every convergent sequence in R is bounded.
(ii) Every bounded sequence in R has a convergent subsequence.
Then:-

- Both (i) and (ii) are true
- (ii) is true but (i) is false
- Neither (i) nor (ii) is true
- (i) is true but (ii) is False

73 of 100

236 PU_2016_372_M

The direction cosines of a line parallel to the z-axis are:-

- 0,0,1
- 0,1,0
- 0,0,0
- 1,0,0

74 of 100

246 PU_2016_372_M

If G is a group of order 10 then it must have a subgroup of order:-

- 3
- 6
- 4
- 2

75 of 100

244 PU_2016_372_M

$$\lim_{\theta \to 0} \frac{\tan\theta - \sin\theta}{\theta^3} =$$

- 1
- 1/2
- 2
- 0

76 of 100

259 PU_2016_372_M

If $f(z)$ is continuous in a simply connected domain D and if $\oint f(z)dz = 0$ for every closed contour in D, then –

- f (z) is non - analytic in D
- f(z) is bounded
- f(z) is analytic in D
- f(z) is constant

77 of 100

234 PU_2016_372_M

$\tan^{-1} x + \tan^{-1} y =$

- $\tan^{-1}(x-y)$
- $\tan^{-1}(x+y)$
- $\tan^{-1}\left(\frac{x+y}{1+xy}\right)$
- $\tan^{-1}\left(\frac{x+y}{1-xy}\right)$

78 of 100

252 PU_2016_372_M

Which regular n-sided polygon has three times as many diagonals as sides?

- 7
- 8
- 6
- 9

79 of 100

257 PU_2016_372_M

The function sin z is analytic in (C is set of complex numbers):-

- C
- C∪ {∞}
- C except on the negative real axis
- C-{0}

80 of 100

250 PU_2016_372_M

Define $f : Z \to Z$ by $f(x) = 3x^3 - x$. Then f is:-

- one-to-one but not onto
- neither one to one nor onto
- both one- to-one and onto
- onto but not one-to-one

81 of 100

268 PU_2016_372_D

Which of the following is a uniformly continuous function on (0,1)?

- e^x
- 1/x
- Sin(1/x)
- $1/(x-1)^2$

82 of 100

279 PU_2016_372_D

Which is not an associative binary operator on the set of integers:-

- a*b = a+b+2
- a*b = a-b (substraction)
- a*b = a.b (multiplication)
- a*b = 2ab

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297 PU_2016_372_D

A connected graph G with at least two vertices contains:-

- at most two vertices that are not cut vertices
- at least two vertices that are not cut vertices
- at least three vertices that are not cut vertices
- at most three vertices that are not cut vertices

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261 PU_2016_372_D

If the only ideals of a ring R are {0} and R then:-

- R is a field
- R is a field provided R is commutative with unit element
- R is the set of all rational numbers
- R is an integral domain

85 of 100

273 PU_2016_372_D

In the following statements which one is not correct?

- A countable infinite set and an uncountable set have different cardinalities.
- A set and its power set have different cardinalities
- A set and its proper subset always have different cardinalities
- A finite and an infinite set have different cardinalities

86 of 100

262 PU_2016_372_D

The number of elements of order 5 in the symmetric group S_5 is:-

- 20
- 12
- 5
- 24

87 of 100

267 PU_2016_372_D

Which of the following is a countable set:-

- The set of all sequences of 0's and 1's.
- (0,1)
- QXQ
- Cantor set

88 of 100

298 PU_2016_372_D

Which of the following statement is wrong?

If G is a connected and unicyclic graph with n vertices and m edges then:-

- for some edge e of G, G-e is a tree
- G is connected and the set of edges of G that are not cut edges forms a cycle
- for every edge e of G, G-e is a tree
- G is connected and n = m

89 of 100

278 PU_2016_372_D

If the integers a, b divides an integer c then ab divides c

- if lcm of a, b is c
- if gcd of a,b is one
- if a divides b
- if a = b

90 of 100

271 PU_2016_372_D

Suppose a, a′, b and b′ are real numbers, then (a+ib)/(a′+ib′) will also be a real number if:-

- ab'-a'b=0
- aa'-bb'=0
- ab - a'b' =0
- ab' -a'b=0

91 of 100

269 PU_2016_372_D

If $z_1 \neq z_2 \neq z_3 \neq z_4$ in C_∞ the cross ratio (z_1, z_2, z_3, z_4) is a real number if z_1, z_2, z_3, z_4 lies on :-

- Parabola
- hyperbola
- Circle
- Triangle

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299 PU_2016_372_D

Which of the following statement is true?

- If G is Eulerian then so is G-e for some edge e in G
- If G is Hamiltonian then ω(G-S) ≤ |S| for every nonempty proper subset S of V
- If G is Eulerian then it is hamiltonian
- G is Hamiltonian iff ω(G-S) ≤ |S| for every nonempty proper subset S of V

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If f(z) is entire function the Taylor series is:-

- Divergent for all z
- Convergent and bounded for all z

- Convergent for all z
- Constant

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In a convergent series of real numbers if first finite number of elements are replaced by different real numbers then:-

- the altered series convergent only if its term are positive real numbers.
- the altered series is also convergent and the sum is not changed.
- the altered series need not be convergent.
- the altered series is also convergent and the sum may be changed.

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Let H and K be subgroups of a group G. Then HK is subgroup of G:-

- only if both H and K are normal sub groups of G.
- only if G is a finite group.
- if one of H and K is a normal subgroup of G.
- only if G is abelian group.

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The sum of the degrees of the vertices of a graph is:-

- the number of vertices minus two
- two times the number of vertices
- two times the number of edges
- the number of edges plus 2

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If A and B are any two right cosets of a nontrivial proper subgroup H of a finite group G. Then:-

- A and B are either having exactly one element common or equal.
- A and B are either disjoint or equal
- A union B is contained in H.
- either A is contained in B or B is contained in A.

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The value of $\arg(z)+\arg(\bar{z})$, where z is not equal to zero is:-

- 0

- $\frac{\pi}{4}$
- $\frac{\pi}{2}$
- π

f

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In the following statements

(i) There exists no bijective map from a set to its proper subset.
There exists no bijective map between disjoint sets.

- Both (i) and (ii) are true
- Neither (i) nor (ii) is true
- (ii) is true but (i) is not true
- (i) is true but (ii) is not true

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Which one is not a countable set:-

- set of positive rational numbers
- set of all rational numbers.
- set of real numbers greater than one and less than 2.
- Set of all integers