

PROVISIONAL ANSWER KEY

Question Paper Code: 36/2016/OL
 Category Code: 139/2015
 Exam: HSST Mathematics
 Medium of Question: English
 Date of Test: 18-03-2016
 Alphacode: A

Question1:-Who among the following is the winner of Jnanapida award in 2015?

- A:-Ragveer Chaudary
- B:-Leeladhar Mandloi
- C:-K.V. Chaudary
- D:-S. Ramanugam

Correct Answer:- Option-A

Question2:-Who is selected as the Miss Universe in 2015?

- A:-Ariyana Guetirus
- B:-Olivia Gordan
- C:-Pia Alonso
- D:-Maria Laiguna

Correct Answer:- Option-C

Question3:-Who among the following is the winner of Ezhuthachan award in 2015?

- A:-Sugathakumari
- B:-K.R. Meera
- C:-Puthusseray Ramachandran
- D:-Meloor Vasudevan

Correct Answer:- Option-C

Question4:-The French open 2015 Women Championship is won by which of the following player?

- A:-Venus Williams
- B:-Serina Williams
- C:-Simonia Halep
- D:-Maria Sharapova

Correct Answer:- Option-B

Question5:-Who among the following is the first Chairman of New Development Bank (NDB)?

- A:-K.V. Kamath
- B:-Nirbhay Sharma
- C:-Dineshkumar Sharma
- D:-Harshit Saunithra

Correct Answer:- Option-A

Question6:-The scheme "Project Arrow" is related to which among the following term?

- A:-Medicine
- B:-Postal Department
- C:-Telephone department
- D:-Infrastructure facility

Correct Answer:- Option-B

Question7:-In 2015 which among the following crop in Kerala get the "Baumasuchika" title?

- A:-Pokkali Rice
- B:-Vazhakulam Pinapple
- C:-Wayanad Gadhakasala Rice
- D:-Changalikkodan

Correct Answer:- Option-D

Question8:-In 2015 which among the following film won the title "Suvarnachakoram" in Kerala International Film Festival?

- A:-Shadow behind the moon
- B:-Ottal
- C:-Ozhivu Divasathe Kali
- D:-Jala's story

Correct Answer:- Option-B

Question9:-The American Spacecraft New Horizon is launched to study which among the following planet?

- A:-Moon
- B:-Pluto
- C:-Mars
- D:-Venus

Correct Answer:- Option-B

Question10:-Which among the following Constitutional Amendment Act is related to the Land Boundary Agreement between India and Bangladesh?

- A:-100
- B:-119
- C:-110
- D:-112

Correct Answer:- Option-A

Question11:-The best teacher is one who is capable of _____.

- A:-giving a good result
- B:-inspiring the students to learn
- C:-completing the topic in time
- D:-helping the students in preparing notes

Correct Answer:- Option-B

Question12:-'Learning by Doing' principle is reflected in _____.

- A:-Realism
- B:-Idealism
- C:-Pragmatism
- D:-Naturalism

Correct Answer:- Option-C

Question13:-In inductive reasoning, one proceeds from

- A:-particular to general
- B:-general to particular
- C:-rational to empirical
- D:-none of these

Correct Answer:- Option-A

Question14:-Which of the following is a projective aid for teaching?

- A:-Still model
- B:-Working model
- C:-Charts
- D:-Slides

Correct Answer:- Option-D

Question15:-The most significant system of evaluation is _____.

- A:-Formative evaluation
- B:-Summative evaluation
- C:-Continuous and comprehensive evaluation
- D:-Continuous evaluation

Correct Answer:- Option-C

Question16:-Characteristics of descriptive research studies are

- A:-They do not involve hypothesis formulation and testing
- B:-They use logical methods of inductive-deductive reasoning to arrive at generalisations
- C:-They never employ methods of randomization in sampling
- D:-The variables and procedures are not described accurately and completely

Correct Answer:- Option-B

Question17:-Conditions or characteristics that the experimenter manipulates or controls in his or her attempt to ascertain their relationship to observed phenomena are called _____.

- A:-Independent variables
- B:-Dependent variables
- C:-Confounding variables
- D:-None of these

Correct Answer:- Option-A

Question18:-Types of experimental validity are

- A:-Content and construct validity
- B:-Statistical validity
- C:-Internal validity
- D:-Internal validity, external validity, statistical validity and construct validity

Correct Answer:- Option-D

Question19:-Qualitative research focuses on _____.

- A:-In-depth interview only
- B:-Observations only
- C:-Document analysis, in-depth interview and observations
- D:-Document analysis only

Correct Answer:- Option-C

Question20:-Probability based sampling method is _____.

- A:-Stratified sampling
- B:-Purposive sampling
- C:-Random sampling
- D:-Judgement sampling

Correct Answer:- Option-A

Question21:-The case known as 'Privy Purse Case' is

- A:-R.C. Cooper v. Union of India
- B:-Ashok Kumar Yadav v. Haryana
- C:-West Bengal v. Nripendra Nath
- D:-Madhav Rao Scindia v. Uol

Correct Answer:- Option-D

Question22:-In which of the following cases did the Supreme Court declare Salwa Judum as unconstitutional?

- A:-Kihoto Hollohan v. Zachillu
- B:-Pratap Singh v. Jharkhand
- C:-Nandini Sundar v. Chattisgarh
- D:-Pooran v. State of U.P

Correct Answer:- Option-C

Question23:-No law made by the Parliament and having extra-territorial operation will be deemed

- A:-invalid
- B:-void
- C:-constitutional
- D:-valid

Correct Answer:- Option-A

Question24:-A legislative Bill which contains only provision dealing with giving of a guarantee by the Government of India is

- A:-Financial Bill
- B:-a Money Bill
- C:-Ordinary Bill
- D:-All of the above

Correct Answer:- Option-B

Question25:-The total number of Ministers including the Prime Minister in the Council of Ministers should be not exceed _____ percent of the total members of the House of the People.

- A:-15
- B:-20
- C:-10
- D:-None of the above

Correct Answer:- Option-A

Question26:-The maximum amount of fine that can be imposed on the respondent who violates a protection order issued under the Protection of Women from Domestic Violence Act is

- A:-Ten Thousand Rupees
- B:-Fifty Thousand Rupees
- C:-Twenty Thousand Rupees
- D:-None of these

Correct Answer:- Option-C

Question27:-National Parks are notified under

- A:-Indian Forests Act
- B:-Forest Conservation Act
- C:-Environment Protection Act
- D:-Wild Life Protection Act

Correct Answer:- Option-D

Question28:-The minimum age of a donor of human organ is

- A:-20 years
- B:-18 years
- C:-21 years
- D:-25 years

Correct Answer:- Option-B

Question29:-Under the Right to Education Act, 'elementary education' means education from first class to

- A:-fourth class
- B:-seventh class
- C:-fifth class
- D:-eighth class

Correct Answer:- Option-D

Question30:-Under the Right to Information Act, disclosure of an information on an incident concerning the economic interest of the state

- A:-is not at all exempted
- B:-can made 15 year after the incident
- C:-is normally exempted from disclosure but can be released 20 years after the incident
- D:-is normally exempted from disclosure but can be released 15 years after the incident

Correct Answer:- Option-C

Question31:-The area of a triangle is equal to that of a square whose side measures 60 m. The side of the triangle whose corresponding altitude is 90 m is

- A:-60 m
- B:-40 m
- C:-80 m
- D:-90 m

Correct Answer:- Option-C

Question32:-The height of an arc of a circle is 10 cm and its diameter is 12.5 cm. The chord of the arc is of length

- A:-10 cm
- B:-12 cm
- C:-8 cm
- D:-11 cm

Correct Answer:- Option-A

Question33:-A sphere of radius 4 cm is carved from a homogeneous sphere of radius 8 cm and mass 160 g. The mass of the smaller sphere is

- A:-80 g
- B:-60 g
- C:-40 g
- D:-20 g

Correct Answer:- Option-D

Question34:-A pendulum swings through an angle of 30° and describes an arc 8.8 cm in length. The length of the pendulum is (Use $\pi = \frac{22}{7}$)

- A:-8.8 cm
- B:-16.8 cm
- C:-12.4 cm
- D:-10.2 cm

Correct Answer:- Option-B

Question35:-A solid cube is cut into two cuboids of equal volumes. The ratio of the total surface area of the given cube to that of one of the cuboids is

- A:-2 : 1
- B:-3 : 2
- C:-4 : 1
- D:-4 : 3

Correct Answer:- Option-B

Question36:-What is the value of $\frac{1}{5 + \frac{1}{5 + \frac{1}{5 + \dots}}}$?

- A:- $\frac{-5 + \sqrt{29}}{2}$
- B:- $\frac{-5 - \sqrt{29}}{2}$
- C:- $\frac{-5 + \sqrt{29}}{2}$
- D:-7

Correct Answer:- Option-A

Question37:- $2^{1000000} \pmod{7}$ is

- A:-5
- B:-3
- C:-2
- D:-4

Correct Answer:- Option-C

Question38:-When $x^5 + x^4 + 5x^2 - 3$ is divided by $x + 2$, the remainder is

- A:-0
- B:-1
- C:-2
- D:-3

Correct Answer:- Option-B

Question39:-A tree with 7 vertices has _____ edges.

- A:-8
- B:-7
- C:-5
- D:-6

Correct Answer:- Option-D

Question40:-The number of distinct spanning trees of K_4 is

- A:-16
- B:-12
- C:-32
- D:-8

Correct Answer:- Option-A

Question41:-If the identity element $e \in S$ exists in a semigroup (S, \cdot) , then it is a

- A:-Group
- B:-Groupoid
- C:-Monoid
- D:-None of the above

Correct Answer:- Option-C

Question42:-The number of generators of $(\mathbb{Z}_{24}, +)$ is

- A:-2
- B:-6
- C:-8
- D:-10

Correct Answer:- Option-C

Question43:-A Sylow 3-subgroup of a group of order 12 has order

- A:-2
- B:-3
- C:-1
- D:-12

Correct Answer:- Option-B

Question44:-Consider \mathbb{Z}_5 and \mathbb{Z}_{20} as rings modulo 5 and 20 respectively. Then the number of homomorphism $\phi: \mathbb{Z}_5 \rightarrow \mathbb{Z}_{20}$ is

- A:-1
- B:-4
- C:-5
- D:-2

Correct Answer:- Option-D

Question45:-Let Q be the field of rational numbers and \mathbb{Z}_2 is a field modulo 2. Then the polynomial $f(x) = x^3 - 9x^2 + 9x + 3$ is

- A:-irreducible over Q but reducible over \mathbb{Z}_2
- B:-irreducible over both Q and \mathbb{Z}_2
- C:-reducible over Q but irreducible over \mathbb{Z}_2
- D:-reducible over both Q and \mathbb{Z}_2

Correct Answer:- Option-A

Question46:-Let $A = \begin{bmatrix} 3 & 1 & -1 \\ 2 & 2 & -1 \\ 2 & 2 & 0 \end{bmatrix}$. The characteristic polynomial of A is

- A:- $x^3 + 5x^2 + 8x + 4$
- B:- $x^2 + 5x$
- C:- $x^3 - 5x^2 + 8x - 4$
- D:- $x^3 + 8x + 4$

Correct Answer:- Option-C

Question47:-The eigen values of the matrix $\begin{bmatrix} 4 & -2 \\ -2 & 1 \end{bmatrix}$ are

- A:-1, 4
- B:-1, 2
- C:-0, 5
- D:-Cannot be determined

Correct Answer:- Option-C

Question48:-Let V be a finite dimensional vector space, I be the identity transformation on V , then the null space of I is

- A:- $\{0\}$
- B:- ϕ
- C:- V
- D:-None of the above

Correct Answer:- Option-A

Question49:-If V is a vector space with $\dim V = n$, then the dimension of the hyperspace of V is

- A:- n
- B:- $n - 1$
- C:- $n + 1$
- D:-0

Correct Answer:- Option-B

Question50:-Let V be a vector space of all 2×2 matrices over R . Let T be the linear mapping $T: V \rightarrow V$ such that $T(A) = AB - BA$ where $B = \begin{bmatrix} 2 & 1 \\ 0 & 3 \end{bmatrix}$. Then the nullity of T is

- A:-1
- B:-2
- C:-3
- D:-4

Correct Answer:- Option-A

Question51:-Banach space is a

- A:-Complete normed vector space
- B:-Normed vector space
- C:-Complete vector space
- D:-None of the above

Correct Answer:- Option-A

Question52:-Which of the following is true?

- A:-All normed spaces are inner product spaces
- B:-All inner product spaces are normed spaces
- C:-All inner product spaces are Banach spaces
- D:-All inner product spaces are Hilbert spaces

Correct Answer:- Option-B

Question53:-Banach space is a Hilbert space if

- A:-Pythagorean theorem holds
- B:-Projection theorem holds
- C:-Parallelogram law holds
- D:-None of the above

Correct Answer:- Option-C

Question54:-If T is a bounded linear operator on a Hilbert space H , which of the following is not true?

- A:- T is normal if T is self-adjoint
- B:- T is normal if T is unitary
- C:- T is self-adjoint if T is normal
- D:-None of the above

Correct Answer:- Option-C

Question55:-The equation of the normal at the point $(a \sec \theta, b \tan \theta)$ on the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is

- A:- $\frac{x}{a} \sec \theta - \frac{y}{b} \tan \theta = 1$
- B:- $\frac{x}{a} \sec \theta + \frac{y}{b} \tan \theta = 1$
- C:- $\frac{ax}{\sec \theta} - \frac{by}{\tan \theta} = a^2 + b^2$
- D:- $\frac{ax}{\sec \theta} + \frac{by}{\tan \theta} = a^2 + b^2$

Correct Answer:- Option-D

Question56:- $\lim_{x \rightarrow \infty} \frac{\log x}{x^n}$ is

- A:- ∞
- B:- $-\infty$
- C:-1
- D:-0

Correct Answer- Option-D

Question57:- $(x \oplus y) + (x' + y')$ is equal to

- A:- $x \oplus y$
 B:- $x' + y'$
 C:-0
 D:-1

Correct Answer- Option-D

Question58:-Let a be any element in a Boolean algebra B . If $a + x = 1$ and $ax = 0$, then

- A:- $x = 1$
 B:- $x = 0$
 C:- $x = a$
 D:- $x = a'$

Correct Answer- Option-D

Question59:-Which of the following is reflexive?

- A:- I^2
 B:- I^1
 C:- $L^1[a, b]$
 D:- I^p

Correct Answer- Option-A

Question60:-If $1 < p < \infty$ and q is conjugate of p , then

- A:- $|p'| = |q|$
 B:- $|p'| = |p|$
 C:- $|p'| < |q|$
 D:- $|p'| > |q|$

Correct Answer- Option-A

Question61:- \mathbb{R}^S is a non-empty set of real numbers, then

- A:- $\inf S = \sup S$
 B:- $\inf S = -\sup(-S)$
 C:- $\inf S = \sup(-S)$
 D:- $\inf S = -\sup S$

Correct Answer- Option-B

Question62:-Every infinite set has

- A:-an uncountable subset
 B:-a countable subset
 C:-both countable and uncountable subsets
 D:-none of the above

Correct Answer- Option-B

Question63:-A real valued function f has discontinuity of the second kind at $x = a$ if

- A:- $f(a+)$ exist only
 B:- $f(a-)$ exist only
 C:-Neither $f(a+)$ nor $f(a-)$ exist
 D:-Both $f(a+)$ and $f(a-)$ exist

Correct Answer- Option-C

Question64:-For the sequence $\{x_n\}$, where $x_n = (-1)^n n$, the $\lim x_n$ is

- A:-1
 B:-0
 C:- $\rightarrow \infty$
 D:- $\rightarrow -\infty$

Correct Answer- Option-D

Question65:-Every open set of real numbers is the union of

- A:-countable collection of disjoint closed intervals
 B:-uncountable collection of disjoint closed intervals
 C:-countable collection of disjoint open intervals
 D:-uncountable collection of disjoint open intervals

Correct Answer- Option-C

Question66:-A set E is nowhere dense if

- A:-closure of E contains non-empty open sets
 B:-closure of E contains no non-empty open sets
 C:-closure of E contains empty open set
 D:-none of the above

Correct Answer- Option-B

Question67:-If f_1 and f_2 are two real-valued bounded functions defined on $[a, b]$ then for every partition P on $[a, b]$

- A:- $U(P, f_1 + f_2) = U(P, f_1) + U(P, f_2)$
 B:- $U(P, f_1 + f_2) \leq U(P, f_1) + U(P, f_2)$
 C:- $U(P, f_1 + f_2) \geq U(P, f_1) + U(P, f_2)$
 D:-None of the above

Correct Answer- Option-B

Question68:-If $f: [a, b] \rightarrow \mathbb{R}$ is continuous and monotonic function then

- A:- f is Riemann integrable on $[a, b]$
 B:- f is not Riemann integrable on $[a, b]$
 C:- f is Riemann integrable on \mathbb{R}
 D:-None of the above

Correct Answer- Option-A

Question69:-Which of the following is true?

- A:-The set $[0, 1]$ is not countable
 B:-If E_1 and E_2 are Lebesgue measurable, then $E_1 \cap E_2$ is Lebesgue measurable
 C:-The family M of Lebesgue measurable sets is an algebra of sets
 D:-All of the above

Correct Answer- Option-D

Question70:-Given $\int_0^1 \frac{\sin(\frac{1}{x})}{\sqrt{x}} dx$, then

- A:-Integral is divergent
 B:-Integral is absolutely convergent
 C:-Integral is not absolutely convergent
 D:-None of the above

Correct Answer- Option-B

Question71:-If f satisfies the conditions of Lagrange's mean value theorem and if $f'(x) = 0 \forall x \in [a, b]$, then which of the following is true?

- A:- f is constant on $[a, b]$
 B:- f is strictly increasing in $[a, b]$
 C:- f is strictly decreasing in $[a, b]$
 D:-None of the above

Correct Answer- Option-A

Question72:- $\lim_{z \rightarrow 0} \frac{z}{z}$ is

- A:-0
 B:-1
 C:- $\frac{1}{2}$
 D:-Does not exist

Correct Answer- Option-D

Question73:-The radius of convergence of the power series $\sum_{n=0}^{\infty} \frac{2n!}{(n!)^2} (2-3i)^n$ is

- A:-1
 B:-0
 C:- $\frac{1}{2}$
 D:- $\frac{1}{4}$

Correct Answer- Option-D

Question74:-A function is said to be harmonic if

- A:- $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 v}{\partial y^2} = 0$
 B:- $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$

$$C: \frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} = 0$$

$$D: \frac{\partial v}{\partial x} + \frac{\partial v}{\partial y} = 0$$

Correct Answer: Option-B

Question75:-The value of $\int_C \log z dz$ where c is the unit circle is

$$A: \pi i$$

$$B: -2 \pi i$$

$$C: -4 \pi i$$

$$D: -0$$

Correct Answer: Option-B

Question76:-The image of the unit circle $|z|=1$ under the transformation $w = 2z + z^2$ is

A:-Circle

B:-Straight line

C:-Parabola

D:-Cardioid

Correct Answer: Option-D

Question77:-If X is any set, T is a collection of all subsets of X then (X, T) is

A:-Discrete topology

B:-Indiscrete topology

C:-Trivial topology

D:-None of the above

Correct Answer: Option-A

Question78:-Let X and Y are topological spaces. The function f is a homeomorphism if

A:- $f: X \rightarrow Y$ is a bijective function

B:- f is continuous

C:- $f^{-1}: Y \rightarrow X$ is continuous

D:-All of the above

Correct Answer: Option-D

Question79:-Every compact subset of a Hausdorff space is

A:-Closed set

B:-Open set

C:-Null set

D:-None of the above

Correct Answer: Option-A

Question80:-The order and degree of the differential equation $\frac{d}{dx} \left(\frac{d^2y}{dx^2} \right)^4 = 0$ is

$$A:-1, 4$$

$$B:-2, 4$$

$$C:-3, 1$$

$$D:-3, 4$$

Correct Answer: Option-C

Question81:-The value of Wronskian $W(x, x^2, x^3)$ is

$$A:-2x^2$$

$$B:-2x^4$$

$$C:-2x^3$$

$$D:-x^2$$

Correct Answer: Option-C

Question82:-The general solution of $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$ is of the form

$$A:-u = f(x+iy) - g(x-iy)$$

$$B:-u = f(x-iy) - g(x+iy)$$

$$C:-u = f(x+iy) + g(x-iy)$$

$$D:-u = f(x-iy) + g(x+iy)$$

Correct Answer: Option-C

Question83:-The partial differential equation formed by eliminating the arbitrary function from $z = f\left(\frac{y}{x}\right)$ is

$$A:-x \frac{\partial z}{\partial x} + \frac{\partial z}{\partial y} = 0$$

$$B:-\frac{\partial z}{\partial x} + \frac{\partial z}{\partial y} = 0$$

$$C:-\frac{\partial z}{\partial x} + y \frac{\partial z}{\partial y} = 0$$

$$D:-x \frac{\partial z}{\partial x} + y \frac{\partial z}{\partial y} = 0$$

Correct Answer: Option-D

Question84:-The orthogonal trajectory of the family of curves $x^2 - y^2 = k$ is given by

$$A:-x^2 + y^2 = c$$

$$B:-xy = c$$

$$C:-y = c$$

$$D:-x = 0$$

Correct Answer: Option-B

Question85:-The general solution of the wave equation $\frac{\partial^2 y}{\partial t^2} = c^2 \frac{\partial^2 y}{\partial x^2}$ is

$$A:-y(x, t) = \Phi(x+ct) + \psi(x-ct)$$

$$B:-y(x, t) = f(x+ct)$$

$$C:-y(x, t) = f(x-ct)$$

D:-No general solution exists

Correct Answer: Option-A

Question86:-Stirling's formula is the _____ of Gauss' forward and backward formulae.

A:-Arithmetic mean

B:-Geometric mean

C:-Harmonic mean

D:-None of the above

Correct Answer: Option-A

Question87:-The interpolating polynomial of the highest degree which corresponds the functional values $f(-1) = 9, f(0) = 5, f(2) = 3, f(5) = 15$ is

$$A:-x^3 + x^2 + 2x + 5$$

$$B:-x^2 - 3x + 5$$

$$C:-x^4 + 4x^3 + 5x^2 + 5$$

$$D:-x + 5$$

Correct Answer: Option-B

Question88:-The solution of the integral equation $\Phi(x) = x + \int_0^x (\Xi - x) \Phi(\Xi) d\Xi$ is

$$A:-\cos x$$

$$B:-\tan x$$

$$C:-\sin x$$

$$D:-\sec x$$

Correct Answer: Option-C

Question89:-The minimizing curve must satisfy a differential equation called

A:-Lagrange's equation

B:-Euler-Lagrange equation

C:-Gauss equation

D:-None of the above

Correct Answer: Option-B

Question90:-A solid figure of revolution, for a given surface area, has maximum volume in the case of

A:-a circle

B:-a sphere

C:-an ellipse

D:-a parabola

Correct Answer: Option-B

Question91:-A rigid body moving in space with one point fixed has degree of freedom

$$A:-3$$

$$B:-1$$

C:-6

D:-9

Correct Answer:- Option-A

Question92:-A particle of unit mass is moving under gravitational field, along the cycloid $x = \varphi - \sin \varphi, y = 1 + \cos \varphi$. Then the Lagrangian for motion is

A:- $\varphi^2(1 + \cos \varphi) - g(1 - \cos \varphi)$

B:- $\varphi^2(1 - \cos \varphi) + g(1 + \cos \varphi)$

C:- $\varphi^2(1 - \cos \varphi) - g(1 + \cos \varphi)$

D:- $2\varphi^2(1 - \cos \varphi) - g(1 + \cos \varphi)$

Correct Answer:- Option-C

Question93:- $L^{-1}\left[\frac{1}{s(s^2+a^2)}\right]$ is

A:- $\frac{1}{a^2}(1 - \cos at)$

B:- $2 \frac{\sin at}{t}$

C:- $\frac{1}{a^2}(e^{at} - 1)$

D:- $\frac{1}{a^2} \sin at$

Correct Answer:- Option-A

Question94:- $\int_0^e e^{-x^2} dx$ is

A:- $\frac{1}{2}$

B:- $\frac{\pi}{2}$

C:- $\frac{\sqrt{\pi}}{2}$

D:- $\sqrt{\pi}$

Correct Answer:- Option-C

Question95:-Using Fourier series, representing x in the interval $[-\pi, \pi]$, the sum of the series $1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \dots$ is

A:-0

B:-1

C:- $\frac{\pi}{2}$

D:- $\frac{\pi}{4}$

Correct Answer:- Option-D

Question96:-The only idempotent t-conorm is

A:-algebraic sum

B:-drastic union

C:-standard fuzzy union

D:-bounded sum

Correct Answer:- Option-C

Question97:-Using fuzzy arithmetic operations on intervals $[4, 10]$ and $[1, 2]$ is

A:- $[4, 5]$

B:- $[2, 10]$

C:- $[2, 8]$

D:- $[4, 20]$

Correct Answer:- Option-B

Question98:-The language generated by the grammar $G = (\{S\}, \{a, b\}, S, P)$ where P is given by $S \rightarrow aSb, S \rightarrow \lambda$ is

A:- $\{a^n b^n, n \geq 0\}$

B:- $\{a^n b^{n+1}, n \geq 0\}$

C:- $\{a^{n+1} b^n, n \geq 0\}$

D:- $\{a^{n+2} b^n, n \geq 1\}$

Correct Answer:- Option-A

Question99:-Which of the following is not true in the derivative of a smooth vector field X ?

A:- $\mathbb{B}_p(X+Y) = \mathbb{B}_p X + \mathbb{B}_p Y$

B:- $\mathbb{B}_p(fX) = (\mathbb{B}_p f)X(p) + f(p)(\mathbb{B}_p X)$

C:- $\mathbb{B}_p(X \mathbb{B}^Y) = (\mathbb{B}_p X) \mathbb{B}^Y(p) + X(p) \mathbb{B}(\mathbb{B}_p Y)$

D:- $\mathbb{B}_p(fX) = f(\mathbb{B}_p X)$

Correct Answer:- Option-D

Question100:-Let X be a non-empty compact Hausdorff space. If every point of X is a limit point of X , thenA:- X is disjointB:- X is countableC:- X is uncountable

D:-None of the above

Correct Answer:- Option-C