

Computer Based Examination System

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Title *	Question Paper Answer Key
OES Exam *	GPSC09202113 / Assistant Professors in Government College in Mathematics/ Completed / 2022-06-26

1	Question Description	If Primal LPP has m number of constraints and n number of variables then the number of constraints in its dual LPP is
	A	n
	B	m
	C	n^2
	D	m^2
	E	None of the above
	Correct Answer	A
	Marks	1

2

Question Description	Which of the following statements is true?
A	The variable with the largest coefficient in the objective function is the only variable with a non-zero value in the optimal solution
B	The variable with the smallest coefficient in the constraint is the only variable with a non-zero value in the optimal solution
C	The variable with the largest ratio of the objective function coefficient to the constraint coefficient is the only variable with a non-zero value in the optimal solution
D	A single constraint LPP can have more than one variable taking non-zero value at the optimum
E	None of the above
Correct Answer	C
Marks	1

3

Question Description

Which of the following is a subspace of $R^3(R)$ under usual addition of vectors and usual scalar multiplication?

$$W_1 = \{(x, y, z) \mid xyz = 0, x, y, z \in R\};$$

$$W_2 = \{(x, x^2, 0) \mid x \in R\};$$

$$W_3 = \{(x + y + z, x - y, y + z) \mid x, y, z \in R\};$$

$$W_4 = \{(x + 1, x, -x) \mid x \in R\}$$

A W_1 and W_2 **B** W_2 and W_3 **C** W_3 **D** W_4 **E**

None of the above

Correct Answer

C

Marks

1

4	Question Description	If Characteristic polynomial and Minimal Polynomial of a 5×5 matrix A are $(\lambda-1)^3(\lambda-5)^2$ and $(\lambda-1)^2(\lambda-5)^2$ respectively, then total number of Jordan blocks in the Jordan Canonical Form of the matrix corresponding to all eigen values is
	A	2
	B	3
	C	4
	D	5
	E	None of the above
	Correct Answer	B
	Marks	1

5	Question Description	Given the function $f: \mathbb{R}^2 \rightarrow \mathbb{R}$ defined by $f(x, y) = x^3 + y^3 + 3x^2 - 3y^2 - 8$ the point $(0, 2)^T$ is
	A	a point of local minimum
	B	a point of local maximum
	C	a stationary point
	D	Cannot conclude
	E	None of the above
	Correct Answer	A
	Marks	1

6

Question Description	Which of the following function is a convex function?
A	$f:[2,6] \rightarrow \mathbb{R}$ defined by $f(x)=\ln x$
B	$f:[-2,2] \rightarrow \mathbb{R}$ defined by $f(x)=x^3-2x$
C	$f:[\pi,2\pi] \rightarrow \mathbb{R}$ defined by $f(x)=\cos x$
D	$f:(-\infty,\infty) \rightarrow \mathbb{R}$ defined by $f(x)=e^{-x}$
E	None of the above
Correct Answer	D
Marks	1

7

Question DescriptionIf Singular Value Decomposition of matrix A is

$$A = \begin{bmatrix} \frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} & \frac{-1}{\sqrt{2}} \end{bmatrix} \begin{bmatrix} 5 & 0 & 0 \\ 0 & 3 & 0 \end{bmatrix} V^T, \text{ then the first column of matrix } A \text{ is}$$

A

$$\left[\frac{1}{\sqrt{2}} \quad 0 \quad \frac{-1}{\sqrt{2}} \right]^T$$

B

$$\left[-\frac{1}{\sqrt{2}} \quad \frac{1}{\sqrt{2}} \quad 0 \right]^T$$

C

$$\left[\frac{1}{\sqrt{2}} \quad \frac{-1}{\sqrt{2}} \quad 0 \right]^T$$

D

$$\left[\frac{1}{\sqrt{2}} \quad \frac{1}{\sqrt{2}} \quad 0 \right]^T$$

E

None of the above

Correct Answer

D

Marks

1

8	Question Description	Consider the LPP: Min $2x - 3y$ subject to the constraints $x + y \leq 4, 2x + y \geq 2, x + 2y \leq 6, x, y \geq 0$. If we solve for x and s (slack variable), as basic and the other variables as non-basic, the value of y is
	A	4
	B	2
	C	0
	D	1
	E	None of the above
	Correct Answer	C
	Marks	1

9	Question Description	Which of the following methods guarantees the optimum solution to the Transportation Problem
	A	North-West Corner Rule
	B	Least Cost method
	C	Stepping stone method
	D	Vogel's Approximation method
	E	None of the above
	Correct Answer	C
	Marks	1

10

Question Description	The rank of a matrix is
A	The minimum number of Linearly independent columns
B	The maximum number of Linearly independent columns
C	The maximum number of Linearly dependent columns
D	The minimum number of Linearly dependent columns
E	None of the above
Correct Answer	B
Marks	1

11

Question DescriptionWhich of the sets in \mathbf{R}^3 are linearly independent? $P = \{(1,1,1), (0,1,1), (0,0,1)\};$ $Q = \{(1,1,1), (0,1,1), (0,0,0)\};$ $R = \{(1,2,-1), (-1,1,0), (1,3,-1)\};$ $S = \{(1,4,3), (2,12,6), (5,15,21), (0,2,-1)\}$ **A** P and Q **B** P and R **C** Q and R **D** Q, R and S **E**

None of the above

Correct Answer

B

Marks

1

12

Question Description

1. Which of the following statement/s is/are not true

a. If $\lambda_1, \lambda_2, \dots, \lambda_n$ are n distinct eigen values of $n \times n$ matrix A , then their corresponding eigen vectors are linearly independent

b. If A is a positive semi-definite matrix then $A + \epsilon I$ is always positive definite where

$\epsilon > 0$ and I is Identity matrix

c. If A is an invertible matrix with eigen vector u corresponding to eigen value λ , then u is an eigen vector of A^{-1} corresponding to eigen value $\frac{1}{\lambda}$

d. If A is a positive semi-definite matrix then $A + \epsilon I$ may have zero eigen values where

$\epsilon > 0$ and I is Identity matrix

A

d)

B

a) and c)

C

b) and c)

D

a) and b)

E

None of the above

Correct Answer

A

Marks

1

13

Question Description	The inner product of vector \vec{u} with vector \vec{v} is zero. Then which of the following statement is true
A	\vec{u} and \vec{v} are linearly independent but not orthogonal
B	\vec{u} and \vec{v} are linearly dependent but not parallel
C	\vec{u} and \vec{v} are orthogonal to each other
D	\vec{u} and \vec{v} are parallel
E	None of the above
Correct Answer	C
Marks	1

14

Question Description	Milne-Thomson method is used to construct
A	Differentiable function
B	Continuous function
C	An analytic function
D	Non-Continuous function
E	None of the above
Correct Answer	C
Marks	1

15	Question Description	Consider the LPP: Max $5x+8y$ subject to the constraints $2x+3y \leq 8, 2x+3y \leq -1, x, y \geq 0$. Which of the following is true?
	A	The LPP is infeasible
	B	The LPP is unbounded
	C	The corner point $(0,0)$ is optimum
	D	The corner point $(4,0)$ is optimum
	E	None of the above
	Correct Answer	A
	Marks	1

16	Question Description	Let T be a linear Transformation whose matrix representation is given by a 5×3 matrix. If $\text{rank}(T)=2$ then $\text{nullity}(T)$ is
	A	0
	B	1
	C	2
	D	3
	E	None of the above
	Correct Answer	B
	Marks	1

17	Question Description	$\lim_{n \rightarrow \infty} \frac{3^{n+1} + 4^{n+1}}{3^n + 4^n} =$
	A	0
	B	1
	C	3
	D	4
	E	None of the above
	Correct Answer	D
	Marks	1

18	Question Description	For any two events A and B , if $P(B) = \frac{1}{10}$, $P(A B) = \frac{3}{7}$, $P(B \bar{A}) = \frac{1}{7}$ then $P(A) =$
	A	$\frac{2}{5}$
	B	$\frac{1}{5}$
	C	$\frac{3}{5}$
	D	0
	E	None of the above
	Correct Answer	C
	Marks	1

19

Question Description

Consider the LPP: $\text{Max } 7x + 6y$ subject to the constraints $x \leq 4, x - y \geq 0, x, y \geq 0$. The objective function value at optimum is

A

51

B

50

C

52

D

0

E

None of the above

Correct Answer

C

Marks

1

20

Question Description	A company makes two products <i>A</i> and <i>B</i> and both require processing on two machines. Product <i>A</i> takes 10 and 15 minutes on the two machines per unit and product <i>B</i> takes 20 and 16 minutes per unit on the two machines. Both the machines are available for 2540 min/week. The products are sold for Rs. 550 and Rs.375 respectively per unit. Then the number of constraints (excluding non-negative constraints) while formulating Linear programming are
A	2
B	3
C	4
D	0
E	None of the above
Correct Answer	B
Marks	1

21

Question DescriptionThe direction of most rapid increase for the function $f: \mathbb{R}^3 \rightarrow \mathbb{R}$ defined by $f(x, y, z) = 2x^2y + z^2$ at the point $(-1, 1, 1)$ is**A**

$$\left(\frac{2}{\sqrt{6}}, \frac{-1}{\sqrt{6}}, \frac{-1}{\sqrt{6}} \right)$$

B

$$\left(\frac{-2}{\sqrt{6}}, \frac{-1}{\sqrt{6}}, \frac{-1}{\sqrt{6}} \right)$$

C

$$\left(\frac{-2}{\sqrt{6}}, \frac{1}{\sqrt{6}}, \frac{1}{\sqrt{6}} \right)$$

D

$$\left(\frac{2}{\sqrt{6}}, \frac{-1}{\sqrt{6}}, \frac{1}{\sqrt{6}} \right)$$

E

None of the above

Correct Answer

C

Marks

1

22

Question Description

The Fourier series expansion for the function

$$f(x) = \begin{cases} \pi x, & 0 \leq x \leq 1 \\ \pi(2-x), & 1 \leq x \leq 2 \end{cases} \text{ is of the form}$$

A

$$\frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cos(n\pi x)$$

B

$$\sum_{n=1}^{\infty} b_n \sin(n\pi x)$$

C

$$\frac{a_0}{2} + \sum_{n=1}^{\infty} b_n \sin(n\pi x)$$

D

$$\frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cos(n\pi x)$$

E

None of the above

Correct Answer

D

Marks

1

23	Question Description	The set of real numbers is
	A	Uncountable
	B	Countable
	C	Infinite
	D	Bounded
	E	None of the above
	Correct Answer	A
	Marks	1

24	Question Description	Which of the following function is not a unimodal function?
	A	$\text{Max } f(x) = \begin{cases} 3x & 0 \leq x \leq 2 \\ 18 - 6x & 2 \leq x \leq 3 \end{cases}$ in the interval $[0, 3]$
	B	$\text{Min } f(x) = \begin{cases} x & 0 \leq x \leq 2 \\ x - 2 & 2 \leq x \leq 4 \end{cases}$ in the interval $[0, 4]$
	C	$\text{Max } f(x) = \begin{cases} -x - 1 & -1 \leq x \leq 0 \\ x + 2 & -2 \leq x \leq -1 \end{cases}$ in the interval $[-2, 0]$
	D	$\text{Min } f(x) = \begin{cases} -2x & 0 \leq x \leq 2 \\ x - 6 & 2 \leq x \leq 6 \end{cases}$ in the interval $[0, 6]$
	E	None of the above
	Correct Answer	B
	Marks	1

25

Question DescriptionFourier Transform of $e^{-|x|}$ is $\frac{2}{1+p^2}$ Then Fourier transform of $e^{-3|x|}$ is**A**

$$\frac{6}{9+p^2}$$

B

$$\frac{2}{9+p^2}$$

C

$$\frac{3}{3+p^2}$$

D

$$\frac{2}{3+p^2}$$

E

None of the above

Correct Answer

A

Marks

1

26

Question DescriptionIf V is a vector space of all $n \times n$ real skew-symmetric matrices, then the dimension of V is**A**

$$\frac{n(n+1)}{2}$$

B

$$\frac{(n+1)}{2}$$

C

$$\frac{n(n-1)}{2}$$

D

$$\frac{(n-1)}{2}$$

E

None of the above

Correct Answer

C

Marks

1

27

Question Description

If A and B are subset of set of real numbers and $C = \{x+y \mid x \in A, y \in B\}$ then

A	$Sup C < Sup A + Sup B$
B	$Sup C = Sup A + Sup B$
C	$Sup C > Sup A + Sup B$
D	$Sup C \neq Sup A + Sup B$

A

A

B

B

C

C

D

D

E

None of the above

Correct Answer

C

Marks

1

28	Question Description	The Fourier series expansion of an even period function contains
	A	Only cosine terms
	B	Cosine terms and a constant
	C	Only sine terms
	D	Sine terms and a constant
	E	None of the above
	Correct Answer	A
	Marks	1

29	Question Description	If \vec{u}_i are vectors and α_i are scalar quantities ($i=1,2,\dots,n$), then the quantity $\sum_{i=1}^n \alpha_i \vec{u}_i$ is termed as
	A	Vector sum
	B	Vector weight
	C	Linear combination
	D	Linear sum
	E	None of the above
	Correct Answer	C
	Marks	1

30	Question Description	Consider the LPP: Max $3x+8y$ subject to the constraints $3x+5y\leq 16, 5x+3y\leq 12, x, y, s_1, s_2\geq 0$. where s_1 and s_2 are slack variables corresponding to the first and second constraint respectively. In the Simplex algorithm, the variable that enters first and this variable replaces the variable respectively are
	A	(x, s_1)
	B	(x, s_2)
	C	(y, s_2)
	D	(y, s_1)
	E	None of the above
	Correct Answer	D
	Marks	1

31	Question Description	Let $A=[0,1]$. Then the maximal element of A is
	A	0
	B	1
	C	2
	D	φ
	E	None of the above
	Correct Answer	B
	Marks	1

32	Question Description	In the interval $(0, 2\pi)$, Function $f(x) = \left(\frac{\pi-x}{2}\right)^2$ is
	A	An odd function
	B	An even function
	C	Neither even nor odd function
	D	Insufficient information
	E	None of the above
	Correct Answer	B
	Marks	1

33	Question Description	In a Transportation problem with 3 supply points and 4 demand points, the number of variables in the formulation is
	A	3
	B	4
	C	7
	D	12
	E	None of the above
	Correct Answer	D
	Marks	1

34	Question Description	Consider the LPP: $\text{Min } 3x + 8y$ subject to the constraints $3x + 5y \geq 17, 5x + y \geq 2, x, y \geq 0$. The number of artificial variables required to initialize the simplex table is
	A	0
	B	1
	C	2
	D	3
	E	None of the above
	Correct Answer	C
	Marks	1

35	Question Description	Which of the following statement is not true about Assignment problem
	A	Assignment problem is a Transportation Problem
	B	The formulation will give binary solutions
	C	While solving the cost matrix is square
	D	One can get non integer solution sometimes
	E	None of the above
	Correct Answer	D
	Marks	1

36	Question Description	If the k^{th} variable in a minimization (Primal) LPP is non-negative, the k^{th} constraint in the Dual LPP is
	A	Inequality of the type \leq
	B	Inequality of the type \geq
	C	Equality
	D	All of the above
	E	None of the above
	Correct Answer	A
	Marks	1

37	Question Description	If $\delta(\cdot)$ is the Dirac delta function, then Laplace Transform of the function $t^4 \delta t-3 $ is
	A	$-81e^{3s}$
	B	$81e^{3s}$
	C	$81e^{-3s}$
	D	$-81e^{-3s}$
	E	None of the above
	Correct Answer	C
	Marks	1

38

Question Description

Given a matrix $A = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ which of the following statement is true

A

Eigen value=1, Algebraic multiplicity=1

B

Eigen value=1, Geometric multiplicity=2

C

Eigen value=1, Algebraic multiplicity=1; Geometric multiplicity=2

D

Eigen value=1, Algebraic multiplicity=2; Geometric multiplicity=1

E

None of the above

Correct Answer

D

Marks

1

39

Question Description

Which if the following relation/relations on a set $\{1, 2, 3, 4, 5\}$ is/are symmetric and transitive but not reflexive

A. $R_1 = \{(1,1), (3,3), (5,5), (1,5)\}$

B. $R_2 = \{(3,3), (5,5), (4,4), (1,2), (2,1)\}$

C. $R_3 = \{(3,3), (5,5), (4,4), (2,2)\}$

D. *null set*

AOnly R_2 **B** R_2 and R_3 **C**Only R_3 **D** R_3 and *null set***E**

None of the above

Correct Answer

D

Marks

1

40

Question DescriptionWhich of the following is a Linear Transformation $T: R^3(R) \rightarrow R^3(R)$?

$$T_1(x, y, z) = (4x, 2y, 3|z|);$$

$$T_2(x, y, z) = (1, y, z);$$

$$T_3(x, y, z) = (x - y, y - z, z - x);$$

$$T_4(x, y, z) = (\sin x, 0, 0)$$

A T_1 and T_3 **B** T_2 **C** T_1 **D** T_3 **E**

None of the above

Correct Answer

D

Marks

1

41	Question Description	The intersection of any closed set is
	A	Closed
	B	Open
	C	Either closed or open
	D	Neither closed nor open
	E	None of the above
	Correct Answer	A
	Marks	1

42	Question Description	The linear combination of $\gcd(1820, 231) = 7$ is?
	A	$1820(7) + 231(-63)$
	B	$1820(-7) + 231(63)$
	C	$1820(8) + 231(-63)$
	D	$1820(-63) + 231(8)$
	E	None of the above
	Correct Answer	C
	Marks	1

43

Question DescriptionGiven a complex vector $(x_1, x_2, \dots, x_n)^T$, its Euclidean norm is**A**

$$\sqrt{|x_1|^2 + |x_2|^2 + \dots + |x_n|^2}$$

B

$$\sqrt{x_1^2 + x_2^2 + \dots + x_n^2}$$

C

$$x_1^2 + x_2^2 + \dots + x_n^2$$

D

$$|x_1|^2 + |x_2|^2 + \dots + |x_n|^2$$

E

None of the above

Correct Answer

A

Marks

1

44

Question Description

If null space of is a real square matrix A of dimension $n \times n$ is $\{0\}$, then which of the following statements are true.

- a. All eigen values of A are non negative
- b. $A^T A$ is positive semi -definite
- c. $A^T A$ is positive definite
- d. All eigen values of A are positive

A

a) and b)

B

c) and d)

C

a) and c)

D

b) and c)

E

None of the above

Correct Answer

B

Marks

1

45	Question Description	The geometric mean of 1,2,4 is
	A	$2\sqrt{2}$
	B	3
	C	2
	D	0
	E	None of the above
	Correct Answer	C
	Marks	1

46	Question Description	The integrating factor of the differential equation $x \ln x \frac{dy}{dx} + y = e^x$ is
	A	x
	B	$\ln x$
	C	e^x
	D	$\frac{1}{x}$
	E	None of the above
	Correct Answer	B
	Marks	1

47

Question Description	Saddle point is a point where
A	function has maximum value
B	function has minimum value
C	function has zero value
D	function has neither maximum value nor minimum value
E	None of the above
Correct Answer	D
Marks	1

48	Question Description	Laplace Transform of $f(t)=t^{-5/2}$ is
	A	$\frac{4\sqrt{\pi}}{3}$
	B	$\frac{4\sqrt{\pi}}{3}s^{2/3}$
	C	$\frac{4\sqrt{\pi}}{3}s^{3/2}$
	D	$\frac{15}{8}s^{7/2}$
	E	None of the above
	Correct Answer	C
	Marks	1

49	Question Description	The number of variables in the formulation of a 5×5 Assignment problem is
	A	5
	B	10
	C	25
	D	50
	E	None of the above
	Correct Answer	C
	Marks	1

50

Question Description

The Jordan Canonical Form of the matrix $\begin{bmatrix} 3 & -1 & 2 \\ 0 & 3 & 2 \\ 0 & 0 & 3 \end{bmatrix}$ is

A

$$\begin{bmatrix} 3 & 0 & 0 \\ 0 & 3 & 1 \\ 0 & 0 & 3 \end{bmatrix}$$

B

$$\begin{bmatrix} 3 & 0 & 1 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$$

C

$$\begin{bmatrix} 3 & 1 & 0 \\ 0 & 3 & 1 \\ 0 & 0 & 3 \end{bmatrix}$$

D

$$\begin{bmatrix} 3 & 1 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$$

E

None of the above

Correct Answer

C

Marks

1

51

Comprehension

Read the Passage Below and answer the following questions:

From the very beginning man has attempted what has seemed impossible. Man is different from the rest of the creation in this respect. He has an eternal thirst for adventure. This has led to countless new discoveries and inventions. Human curiosity is limitless. This has led to space flights and moon landings. The desire to know what is beyond the visible world takes many forms. The Everest hero Tenzing and the hero of the 'Seven Seas', Mihir Sen, were inspired by the same restless spirit. Astronauts Armstrong, Collins and Aldrin, who were the first humans to set foot on the soil of the moon, have proved beyond doubt that man shall not rest until he has conquered the entire universe. But, is it enough to know and master nature? Which is more important: knowing and understanding the world around or knowing and understanding yourself? In the absence of self-knowledge, the most advanced knowledge of the universe is not only useless but dangerous.

Question Description

From the options provided below, identify the phrase that does not describe the innate nature of human kind, as per the passage

A

eternal thirst for knowledge

B

countless new discoveries and inventions

C

desire to know what is beyond the visible world

D

restless spirit

E

None of the above

Correct Answer

B

Marks

1

Comprehension

Read the Passage Below and answer the following questions:

From the very beginning man has attempted what has seemed impossible. Man is different from the rest of the creation in this respect. He has an eternal thirst for adventure. This has led to countless new discoveries and inventions. Human curiosity is limitless. This has led to space flights and moon landings. The desire to know what is beyond the visible world takes many forms. The Everest hero Tenzing and the hero of the 'Seven Seas', Mihir Sen, were inspired by the same restless spirit. Astronauts Armstrong, Collins and Aldrin, who were the first humans to set foot on the soil of the moon, have proved beyond doubt that man shall not rest until he has conquered the entire universe. But, is it enough to know and master nature? Which is more important: knowing and understanding the world around or knowing and understanding yourself? In the absence of self-knowledge, the most advanced knowledge of the universe is not only useless but dangerous.

Question Description

The passage indicates that mankind differs from other living species in

A

the thirst for adventure

B

self-knowledge

C

the desire to conquer the universe

D

attempting the impossible

E

None of the above

Correct Answer

D

Marks

1

Comprehension

Read the Passage Below and answer the following questions:

From the very beginning man has attempted what has seemed impossible. Man is different from the rest of the creation in this respect. He has an eternal thirst for adventure. This has led to countless new discoveries and inventions. Human curiosity is limitless. This has led to space flights and moon landings. The desire to know what is beyond the visible world takes many forms. The Everest hero Tenzing and the hero of the 'Seven Seas', Mihir Sen, were inspired by the same restless spirit. Astronauts Armstrong, Collins and Aldrin, who were the first humans to set foot on the soil of the moon, have proved beyond doubt that man shall not rest until he has conquered the entire universe. But, is it enough to know and master nature? Which is more important: knowing and understanding the world around or knowing and understanding yourself? In the absence of self-knowledge, the most advanced knowledge of the universe is not only useless but dangerous.

Question Description

Read the following statements and arrange them in a logical sequence in line with the tone of the passage

- (i) In the absence of self-knowledge, it is also dangerous
- (ii) Knowing and understanding yourself is more important
- (iii) The most advanced knowledge of the universe is useless
- (iv) Knowing and understanding the world around is important

A

(i); (ii); (iii); (iv)

B

(iv); (ii); (iii); (iv)

C

(iii); (i); (ii); (iv)

D

(ii); (iv); (iii); (i)

E

None of the above

Correct Answer

B

**Marks
Comprehension**

1
Read the Passage Below and answer the following questions:

From the very beginning man has attempted what has seemed impossible. Man is different from the rest of the creation in this respect. He has an eternal thirst for adventure. This has led to countless new discoveries and inventions. Human curiosity is limitless. This has led to space flights and moon landings. The desire to know what is beyond the visible world takes many forms. The Everest hero Tenzing and the hero of the 'Seven Seas', Mihir Sen, were inspired by the same restless spirit. Astronauts Armstrong, Collins and Aldrin, who were the first humans to set foot on the soil of the moon, have proved beyond doubt that man shall not rest until he has conquered the entire universe. But, is it enough to know and master nature? Which is more important: knowing and understanding the world around or knowing and understanding yourself? In the absence of self-knowledge, the most advanced knowledge of the universe is not only useless but dangerous.

Question Description

In the passage what is described as boundless

A

the desire to know

B

the universe

C

the restless spirit

D

human curiosity

E

None of the above

Correct Answer

D

Marks

1

55

Comprehension

Read the Passage Below and answer the following questions:

From the very beginning man has attempted what has seemed impossible. Man is different from the rest of the creation in this respect. He has an eternal thirst for adventure. This has led to countless new discoveries and inventions. Human curiosity is limitless. This has led to space flights and moon landings. The desire to know what is beyond the visible world takes many forms. The Everest hero Tenzing and the hero of the 'Seven Seas', Mihir Sen, were inspired by the same restless spirit. Astronauts Armstrong, Collins and Aldrin, who were the first humans to set foot on the soil of the moon, have proved beyond doubt that man shall not rest until he has conquered the entire universe. But, is it enough to know and master nature? Which is more important: knowing and understanding the world around or knowing and understanding yourself? In the absence of self-knowledge, the most advanced knowledge of the universe is not only useless but dangerous.

Question Description

From the options provided, select the antonym of the word "restless", in the sense implied in the passage

A

peace loving

B

calm

C

contentious

D

eager

E

None of the above

Correct Answer

B

Marks

1

56	Question Description	Who among the following has recently been appointed ambassador of Indo-UK culture platform?
	A	Sonu Nigam
	B	Arijit Singh
	C	Shankar Mahadevan
	D	AR Rahman
	E	None of the above
	Correct Answer	D
	Marks	1

57	Question Description	World Veterinary Day is being celebrated on which date?
	A	April 29
	B	April 28
	C	April 30
	D	April 27
	E	None of the above
	Correct Answer	C
	Marks	1

58

Question Description Maruti Suzuki Installs Asia's largest 20 MWp carport type Solar Plant at which state?**A** Haryana**B** Maharashtra**C** Rajasthan**D** Punjab**E** None of the above**Correct Answer** A**Marks** 1

59

Question Description B. C. Roy Award is given in the field of**A** Music**B** Journalism**C** Medicine**D** Environment**E** None of the above**Correct Answer** C**Marks** 1

60	Question Description	What is the name of the eBook launched by the Income Tax Department?
	A	Amrutwani
	B	Pratidhwani
	C	Aatmnirbhar
	D	Kiyaverse
	E	None of the above
	Correct Answer	B
	Marks	1

61	Question Description	Baikho festival is celebrated in which state?
	A	Manipur
	B	Nagaland
	C	Tripura
	D	Assam
	E	None of the above
	Correct Answer	D
	Marks	1

62

Question Description	Who was the first Indian Chief of Army Staff of the Indian Army ?
A	Gen. K.M. Cariappa
B	Vice-Admiral R.D. Katari
C	Gen. Maharaja Rajendra Singhji
D	Gen. Vishit Singh
E	None of the above
Correct Answer	A
Marks	1

63

Question Description	Tap to pay for UPI' is a new functionality launched by which platform?
A	Google Pay
B	PhonePe
C	BHIM App
D	Paytm
E	None of the above
Correct Answer	A
Marks	1

64	Question Description	India has recently launched its first COVID-19 vaccine for animals. What is the name of vaccine?
	A	Petcovax
	B	Anocovax
	C	Creacovax
	D	Armacovax
	E	None of the above
	Correct Answer	B
	Marks	1

65	Question Description	The world's first wildlife conservation bond Has been issued by the World Bank for which animal?
	A	White elephant
	B	Black Rhinoceros
	C	Asiatic Lion
	D	Bengal Tiger
	E	None of the above
	Correct Answer	B
	Marks	1

66

Question Description	On what dates of April, 2001 did Wednesday fall?
A	1 st , 8 th , 15 th , 22 nd , 29 th
B	2 nd , 9 th , 16 th , 23 rd , 30 th
C	3 rd , 10 th , 17 th , 24 th
D	4 th , 11 th , 18 th , 25 th
E	None of the above
Correct Answer	D
Marks	1

67

Question Description

Following questions are based upon the word series given below.
DEN, RAT, EAR, OWL, CUB

If all the letters in all the words are arranged in reverse alphabetical order(within the word), then which of the following words can be formed using first letter of first word from left end, second letter of second word from right end and first letter of second word from left end?

A

BOT

B

ATN

C

NOT

D

TEN

E

None of the above

Correct Answer

C

Marks

1

68

Question Description

Find the missing Numbers.

38	54	61	79
21	?	12	24
19	09	14	?

A

18, 46

B

28, 51

C

42, 62

D

18, 44

E

None of the above

Correct Answer

D

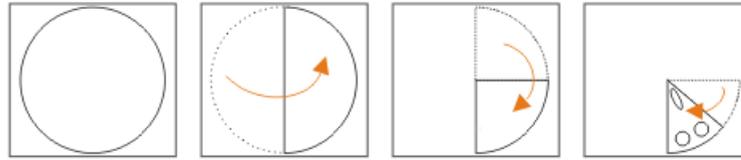
Marks

1

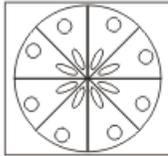
69

Question Description

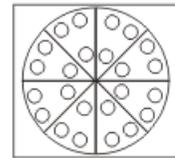
In the question, a piece of paper is folded and cut as shown below in the questions figures. From the given option figures, which one indicates how it will appear when opened.



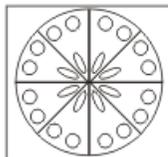
A



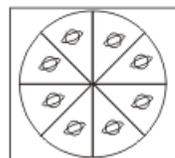
B



C



D



A

A

B

B

C

C

D

D

E	None of the above
Correct Answer	C
Marks	1

70 **Question Description** January 1, 2008 is Tuesday. What day of the week lies on Jan 1, 2009?

A	Monday
B	Wednesday
C	Thursday
D	Sunday
E	None of the above
Correct Answer	C
Marks	1

71

Question Description

Find out the wrong number in the given sequence of numbers.

105, 85, 60, 30, 0, -45, -90

A

0

B

85

C

-45

D

60

E

None of the above

Correct Answer

A

Marks

1

72

Question Description

In a family of 7 persons, there are only 3 females and three married couples. Each child has both the parents alive. The family members – A,B,C,D,E,F and G spent certain amounts in a month.

B is the only son of G, who spent the third highest amount. A is not a female and spent an amount just lower than D's husband. C is the father of two children of different genders one of them is D. E's mother-in-law was the third highest spender. F is the aunt of A and spent the highest amount. The spendings of E were just lower than A's uncle, who spent the fourth highest amount. C spent Rs. 4500, which is the second highest amount to be spent.

How is the second highest spender related to the second lowest spender?

A

Father

B

Maternal grandfather

C

Paternal Uncle

D

Can't be determined

E

None of the above

Correct Answer

B

Marks

1

73

Question Description

Read the following information carefully and answer the questions given beside.

Certain number of persons is standing in a linear row facing towards the north. Information about few of them is given here. T stands third to the left of G, who is sixth to the right of A. 7 persons stand between B and T, where T is somewhere to the left of B. 3 persons stand between D and B, who is second to the left of the one who is fourth from the right end. Only 4 persons stand between U and C. 3 persons stand to the right of C, which is half the number of persons standing to the left of T.

What is the position of T with respect to U?

A 2nd to the right

B 7th to the left

C 5th to the left

D 3rd to the left

E None of the above

Correct Answer C

Marks 1

74

Question Description

Direction: In each of the following question, there is a certain relationship between two given pair on both side of '::' . One word is given on another side of '::' while another word is to be found from the given options, having the same relation with this word as the words of the given pair . Choose the correct word from the following options.

Tectonics : Building : : Taxidermy : ?

A

Classification

B

Conserving

C

Stuffing

D

Collecting

E

None of the above

Correct Answer

C

Marks

1

75

Question Description	A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is:
A	100 kmph
B	110 kmph
C	120 kmph
D	130 kmph
E	None of the above
Correct Answer	C
Marks	1