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Question Paper Answer Key

OES Exam\*

GPSC06202207 / Assistant Professors in Government College in Mathematics/ Completed / 2022-10-01

<b>Question Description</b>	If $X_1, X_2, \dots, X_{25}$ are non-zero, orthogonal vectors, then the dimension of the vector space spanned by $X_1, X_2, \dots, X_{25}, -X_1, -X_2, \dots, -X_{25}$ is
<b>A</b>	50
<b>B</b>	26
<b>C</b>	1
<b>D</b>	25
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	The system of equations given by $\begin{bmatrix} 1 & 2 & 1 \\ 2 & 1 & 2 \\ 1 & 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 6 \\ 6 \\ 5 \end{bmatrix}$ has
<b>A</b>	A unique solution
<b>B</b>	No solution
<b>C</b>	Infinite solution
<b>D</b>	Exactly two solutions
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	In topological space $X$ , if for every pair of distinct points $p$ and $q \in X$ , $\exists$ two disjoint open sets $U$ and $V$ such that $p \in U \wedge q \in V$ then $X$ is called
<b>A</b>	Hausdroff Space
<b>B</b>	$T_1$ space
<b>C</b>	$T_0$ space
<b>D</b>	Connected Space
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	Which one of the following statements is correct ?
<b>A</b>	Every bounded sequence is convergent
<b>B</b>	Every bounded sequence has a convergent subsequence
<b>C</b>	Every bounded sequence having a limit point is convergent
<b>D</b>	A convergent sequene may have a divergent subsequence
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	For any complex vectors $\mathbf{u}$ and $\mathbf{v}$ of size $n \times 1$ , the inner product of $\mathbf{u}$ and $\mathbf{v}$ is defined as
<b>A</b>	$\mathbf{u}\mathbf{v}^H$
<b>B</b>	$\mathbf{u}^T \mathbf{v}^H$
<b>C</b>	$\mathbf{u}^H \mathbf{v}$
<b>D</b>	$\mathbf{u}^T \mathbf{v}$
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	<i>Pick the incorrect statement :</i>
<b>A</b>	<i>Every linear subspace of a normed space is convex</i>
<b>B</b>	<i>every ball <math>\in</math> a normed space is convex</i>
<b>C</b>	<i><math>\cup</math> of two convex sets is convex</i>
<b>D</b>	<i><math>\cap</math> of two convex sets is convex</i>
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	Singular Value Decomposition is defined for
<b>A</b>	Any matrix
<b>B</b>	Only square matrices
<b>C</b>	Only invertible matrices
<b>D</b>	Only wide matrices
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	You are designing a rectangular poster to contain $50\text{cm}^2$ of printing with a 4 cm margin at the top and bottom and a 2 cm margin at left and right .Then the ratio of the vertical length of the paper to its horizontal length so that the amount of paper used is minimum is
<b>A</b>	1
<b>B</b>	$\sqrt{2}$
<b>C</b>	$\frac{(\sqrt{5}-1)}{2}$
<b>D</b>	2
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	The solution of the differential equation $\frac{dy}{dx} - 2xy = e^{x^2}$ with $y(0) = 1$ is
<b>A</b>	$x e^{x^2}$
<b>B</b>	$x e^{-x^2}$
<b>C</b>	$(x+1) e^{x^2}$
<b>D</b>	All of the above
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	The pseudo -inverse of a tall full column rank matrix $A$ is given by
<b>A</b>	$(AA^T)^{-1} A^T$
<b>B</b>	$(A^T A)^{-1} A^T$
<b>C</b>	$A^T (AA^T)^{-1}$
<b>D</b>	$(A^T A)^{-1} A$
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	Let $F$ be a finite field of size $q$ and $E$ be some finite field extension of $F$ . Then, for any $a, b$ , in $F$ , which of the following is true?
<b>A</b>	$(a + b)^q = a^q + b^q$ in $E$
<b>B</b>	$(a + b)^q = a^q + b^q$ in $F$
<b>C</b>	$(a + b)^q = a + b$ in $F$
<b>D</b>	All the above
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	Order and degree of the differential equation $\left(\frac{d^3x}{dt^3}\right) - \sqrt{\left(\frac{dx}{dt}\right)^3} + x = 0$ is respectively
<b>A</b>	1,3
<b>B</b>	3,1
<b>C</b>	3,2
<b>D</b>	3,3
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	For any vector $u$ , let $v = \frac{u}{\ u\ ^2}$ . Then $\ v\  =$
<b>A</b>	$\frac{1}{\ u\ }$
<b>B</b>	1
<b>C</b>	$\ u\ $
<b>D</b>	$\ u\ ^2$
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	If $X = [x_1, x_2, \dots, x_n]^T$ is a non-zero vector, then $(X X^T)$
<b>A</b>	has rank 0
<b>B</b>	has rank 1
<b>C</b>	has rank $n-1$
<b>D</b>	is orthogonal
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	For a wide full row rank matrix $A$ of size $m \times n$ , with $m < n$ , the number of solutions for the system of equations $Ax = b$ is
<b>A</b>	0
<b>B</b>	1
<b>C</b>	2
<b>D</b>	Infinite
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	If $Z$ is a complex variable, $C$ , a unit, then $\oint_C \frac{dz}{z}$ [integral being taken counter-clockwise]
<b>A</b>	$2\pi$
<b>B</b>	$2\pi i$
<b>C</b>	$-2\pi$
<b>D</b>	$-2\pi i$
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	Solution of the differential equation $t \frac{dx}{dt} + x = 0$ represents a family of
<b>A</b>	Circles
<b>B</b>	Parabolas
<b>C</b>	Ellipses
<b>D</b>	Hyperbolas
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	If the characteristic equation of the differential equation $\frac{d^2u}{dx^2} + 2k \frac{du}{dx} + u = 0$ has two equal roots
<b>A</b>	0,0
<b>B</b>	1,-1
<b>C</b>	1,1
<b>D</b>	$\frac{1}{2}, \frac{-1}{2}$
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	If one of the eigen value of the matrix $\begin{bmatrix} 3 & -2 & 2 \\ 0 & -2 & 1 \\ 0 & 0 & 1 \end{bmatrix}$ is equal to $-2$ , then the corresponding eigen vector is
<b>A</b>	$[-3 \ 2 \ 1]^T$
<b>B</b>	$[3 \ -2 \ 1]^T$
<b>C</b>	$[3 \ 2 \ 1]^T$
<b>D</b>	$\left[\frac{2}{5} \ 1 \ 0\right]^T$
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	A square matrix $A$ is such that $A^2 - 5A + 6I = 0$
<b>A</b>	1.17, -1.17
<b>B</b>	-2, -3
<b>C</b>	2, 3
<b>D</b>	3, -2
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	If a topological space X cannot be expressed as union of two nonempty disjoint open sets then it is said to be
<b>A</b>	Hausdroff Space
<b>B</b>	$T_1$ space
<b>C</b>	$T_0$ space
<b>D</b>	Connected Space
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	$\{x_n = (-1)^n\}$ is
<b>A</b>	Convergent sequence
<b>B</b>	Oscillating sequence
<b>C</b>	Monotonic sequence
<b>D</b>	Divergent sequence
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	The statement: “Let F be a closed and bounded subset of R then, every open cover of F has a finite subcover” is called
<b>A</b>	Measurable function theorem
<b>B</b>	Heine-Borel theorem
<b>C</b>	Corollary to Borel’s Theorem
<b>D</b>	Open Cover theorem
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	The type of the partial differential equation $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$ is
<b>A</b>	Parabolic
<b>B</b>	Hyperbolic
<b>C</b>	Non-linear
<b>D</b>	Elliptic
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	A complex valued function $f(z)$ , defined in an open ball $\Omega$ , is said to be analytic in $\Omega$
<b>A</b>	If it is continuous at every point of $\Omega$
<b>B</b>	If it is derivable at a single point of $\Omega$
<b>C</b>	If it is derivable at every point of $\Omega$
<b>D</b>	If it is continuous at an arbitrary pint of $\Omega$
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	The function $f(x)=x^2$ defined on set of reals is an example of
<b>A</b>	Strictly monotonic function
<b>B</b>	Piecewise monotonic function
<b>C</b>	Not monotonic function
<b>D</b>	Monotonically decreasing function
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	The differential equation $\frac{d^2 y}{dx^2} + 16y = 0$ with the boundary conditions $\frac{dy}{dx} = 1$ at $x = 0$ and $\frac{dy}{dx} = -1$ at $x = \frac{\pi}{2}$ has
<b>A</b>	Exactly two solutions
<b>B</b>	Exactly one solution
<b>C</b>	No solution
<b>D</b>	Infinite number of solutions
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	Suppose the curve $y = x^3 - 4x + 1$ has smallest slope $m$ at the point $(a, b)$ . The $a+b+m=$
<b>A</b>	-3
<b>B</b>	-2
<b>C</b>	1
<b>D</b>	3
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	The value of $\oint_{ z-i =2} \frac{dz}{z^2+4}$ in positive sense is
<b>A</b>	$\frac{\pi}{2}$
<b>B</b>	$\frac{-\pi}{2}$
<b>C</b>	$\frac{\pi i}{2}$
<b>D</b>	$\frac{-\pi i}{2}$
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	If $f(z) = \sum_{n=0}^{\infty} a_n (z - 2)^{2n}$ is Taylor series of analytic function $f(z)$ in some disc, then
<b>A</b>	$f^{(n)}(0) = (2n)! a_n$
<b>B</b>	$f^{(n)}(2) = (n)! a_n$
<b>C</b>	$f^{(2n)}(2) = (2n)! a_n$
<b>D</b>	$f^{(2n)}(2) = (n)! a_n$
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	Let $X$ be a normed space and $f$ be a bounded, nonzero linear functional on $X$
<b>A</b>	Then, which of the following is not true?
<b>B</b>	$f$ is onto
<b>C</b>	$f$ is continuous
<b>D</b>	$\ker f$ is a closed subspace of $X$
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	<i>The number of points <math>x \in (-\infty, \infty)</math> for which <math>\cos^2 x - 12x = 13</math> is</i>
<b>A</b>	0
<b>B</b>	1
<b>C</b>	Infinite in number
<b>D</b>	More than 1 but finite
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	Singularities of a rational function are:
<b>A</b>	Poles
<b>B</b>	Essential
<b>C</b>	Non isolated
<b>D</b>	removable
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	Set of real numbers $R$ with Euclidean distance metric is,
<b>A</b>	A compact and connected topological space
<b>B</b>	A non-compact, non-connected topological space
<b>C</b>	A compact but not connected topological space
<b>D</b>	A connected but not compact topological space
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	Consider the 2 dimensional wave equation $u_{tt} = C^2(u_{xx} + u_{yy})$ where $C$ is a constant. This equation in polar coordinates $x = r \cos\theta, y = r \sin\theta$ can be written as
<b>A</b>	$u_{tt} - C^2 \left( u_{rr} + \frac{u_r}{r} + \frac{u_{\theta\theta}}{r^2} \right) = 0$
<b>B</b>	$u_{tt} - C^2(u_{rr} + u_{\theta\theta}) = 0$
<b>C</b>	$u_{tt} - C^2(u_{rr} + u_r + u_{\theta\theta}) = 0$
<b>D</b>	$u_{tt} - C^2 \left( u_{rr} - \frac{u_r}{r} + \frac{u_{\theta\theta}}{r^2} \right) = 0$
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	The p-series $\sum \frac{1}{n^p}$ is
<b>A</b>	Convergent if $p > 1$ and divergent if $p \leq 1$
<b>B</b>	Convergent if $p < 1$ and divergent if $p \geq 1$
<b>C</b>	Convergent if $p \geq 1$ and divergent if $p < 1$
<b>D</b>	Convergent if $p \leq 1$ and divergent if $p > 1$
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	Let $A$ be a matrix which is neither symmetric nor skew-symmetric. Let $A^T$ be the transpose of $A$ . Let $U=A+A^T$ and $V=A-A^T$ . Which of the following is true
<b>A</b>	$U$ is symmetric and $V$ is skew-symmetric
<b>B</b>	Both $U$ and $V$ are symmetric
<b>C</b>	Both $U$ and $V$ are skew-symmetric
<b>D</b>	$U$ is skew-symmetric and $V$ is symmetric
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	Let $U$ and $W$ be subspaces of a vector space $V$ and $U \cup W$ is also a subspace of $V$ , then
<b>A</b>	either $U \subseteq W$ or $W \subseteq U$
<b>B</b>	$U \cap W = \varphi$
<b>C</b>	$U = W$
<b>D</b>	All of the above
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	Which of the following is a solution to the differential equation $x \frac{d^2 y}{dx^2} - 2 \frac{y}{x} = 0 \text{ for } x > 0 .$
<b>A</b>	$x$
<b>B</b>	$\ln(x)$
<b>C</b>	$e^x$
<b>D</b>	$\frac{1}{x}$
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

**Question Description** For the function  $f(z)=e^{\frac{1}{z}}$  the point  $z=0$  is a

**A** Essential Singularity

**B** removbale singularity

**C** Simple pole

**D** All of the above

**E** None of the above

**Correct Answer** A

**Marks** 1

**Question Description** If  $A = \begin{bmatrix} a & -1 \\ b & 5 \end{bmatrix}$  and Eigen values of  $A$  are 1 and 6 then the value of constants  $a$  and  $b$  are respectively

**A** 2,4

**B** 4,2

**C** 2,-4

**D** -4,2

**E** None of the above

**Correct Answer** C

**Marks** 1

<b>Question Description</b>	Which set of $3 \times 1$ matrices is not a vector space where $r_i (i=1,2,3)$ is the $i^{\text{th}}$ element in the matrix
<b>A</b>	The set of $3 \times 1$ matrices with zero in $r_3$
<b>B</b>	The set of $3 \times 1$ matrices with $r_1 = 1 + r_3$
<b>C</b>	The set of $3 \times 1$ matrices with $\sum_{i=1}^3 r_i = 0$
<b>D</b>	The set of $3 \times 1$ matrices with $r_1 = -r_3$
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	The partial differential equation $\frac{\partial y}{\partial t} + y \frac{\partial y}{\partial x} = \frac{\partial^2 y}{\partial x^2}$ is a
<b>A</b>	Linear equation of order 1
<b>B</b>	Non-Linear equation of order 1
<b>C</b>	Linear equation of order 2
<b>D</b>	Non-Linear equation of order 2
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	Given a matrix of size $3 \times 7$ , the <i>Rank+nullity</i> of the matrix is
<b>A</b>	3
<b>B</b>	7
<b>C</b>	4
<b>D</b>	10
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	<i>If <math>T: R^4 \rightarrow R^4</math>, defined by <math>T(e_1) = (e_1), T(e_2) = (e_3), T(e_3) = 0, T(e_4) = (e_3)</math> then</i>
<b>A</b>	<i>T is nilpotent</i>
<b>B</b>	<i>T has nonzero eigenvalue</i>
<b>C</b>	<i>index of nilpotent is five</i>
<b>D</b>	<i>T is not nilpotent</i>
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	<i>If <math>A^2 - A = O</math>, where <math>A</math> is <math>9 \times 9</math> then</i>
<b>A</b>	<i>A must be a zero</i>
<b>B</b>	<i>A must be an identity</i>
<b>C</b>	<i>rank of <math>A</math> is <math>1 \vee 0</math></i>
<b>D</b>	<i>A is diagonalizable</i>
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	Which of the following domains in does not satisfy the exterior sphere condition
<b>A</b>	An Ellipse
<b>B</b>	A triangle
<b>C</b>	A region between two triangles ( One triangle is inside the other triangle)
<b>D</b>	An Annulus
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	The eigen values of a skew-Hermitian matrix are
<b>A</b>	Always 0
<b>B</b>	Always pure imaginary
<b>C</b>	Either zero or imaginary
<b>D</b>	Always real
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	The residue of the function $f(z) = \frac{1}{(z+2)^2(z-2)^2}$ at $z=2$ is
<b>A</b>	$\frac{1}{32}$
<b>B</b>	$\frac{1}{16}$
<b>C</b>	$-\frac{1}{32}$
<b>D</b>	$-\frac{1}{16}$
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	Which of the following conditions imply that a square matrix of order $n$ is invertible
<b>A</b>	Only $A$ is non-singular
<b>B</b>	Only $\text{rank}(A) = n$
<b>C</b>	Only $AX=0 \Rightarrow X=0$
<b>D</b>	All the above
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Comprehension</b>	<p>Read the Passage Below and answer the questions</p> <p>Since the end of the last World War, the Emperor has several times rejected the suggestion that a new palace should be built for him or that his existing quarters should be suitable reconstructed. The Emperor refused to live in a luxurious palace, because millions of his people were rendered homeless during the war, their standard of living had fallen and they were subject to various kinds of hardship. The Emperor and the Empress have, therefore, continued to live in the bomb-shelter. This is hardly the place the Emperor would have chosen to live in, as the floor of the bomb-shelter is wet for most of the time. In the last few years, the economic condition of Japan has improved. The Emperor has, therefore, accepted the advice of his ministers that a palace should be built for him.</p>
<b>Question Description</b>	According to the passage, the Emperor refused to live in a palace because
<b>A</b>	he was the Emperor
<b>B</b>	his country suffered a defeat in the war
<b>C</b>	his people were rendered homeless by war
<b>D</b>	he did not wish to live better when his people were homeless and suffering hardships
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Comprehension</b>	<p>Read the Passage Below and answer the questions</p> <p>Since the end of the last World War, the Emperor has several times rejected the suggestion that a new palace should be built for him or that his existing quarters should be suitably reconstructed. The Emperor refused to live in a luxurious palace, because millions of his people were rendered homeless during the war, their standard of living had fallen and they were subject to various kinds of hardship. The Emperor and the Empress have, therefore, continued to live in the bomb-shelter. This is hardly the place the Emperor would have chosen to live in, as the floor of the bomb-shelter is wet for most of the time. In the last few years, the economic condition of Japan has improved. The Emperor has, therefore, accepted the advice of his ministers that a palace should be built for him.</p>
<b>Question Description</b>	The residence of the Emperor is peethily described in the passage as
<b>A</b>	a luxurious palace
<b>B</b>	hardly the place Emperor would have chosen to live in
<b>C</b>	wet for most of the time
<b>D</b>	a bomb-shelter
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Comprehension</b>	<p>Read the Passage Below and answer the questions</p> <p>Since the end of the last World War, the Emperor has several times rejected the suggestion that a new palace should be built for him or that his existing quarters should be suitable reconstructed. The Emperor refused to live in a luxurious palace, because millions of his people were rendered homeless during the war, their standard of living had fallen and they were subject to various kinds of hardship. The Emperor and the Empress have, therefore, continued to live in the bomb-shelter. This is hardly the place the Emperor would have chosen to live in, as the floor of the bomb-shelter is wet for most of the time. In the last few years, the economic condition of Japan has improved. The Emperor has, therefore, accepted the advice of his ministers that a palace should be built for him.</p>
<b>Question Description</b>	Find a word or phrase from the passage which means “dismiss as unacceptable, inadequate or faulty”
<b>A</b>	refused
<b>B</b>	rejected
<b>C</b>	accepted the advice
<b>D</b>	chosen to live
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Comprehension</b>	<p>Read the Passage Below and answer the questions</p> <p>Since the end of the last World War, the Emperor has several times rejected the suggestion that a new palace should be built for him or that his existing quarters should be suitable reconstructed. The Emperor refused to live in a luxurious palace, because millions of his people were rendered homeless during the war, their standard of living had fallen and they were subject to various kinds of hardship. The Emperor and the Empress have, therefore, continued to live in the bomb-shelter. This is hardly the place the Emperor would have chosen to live in, as the floor of the bomb-shelter is wet for most of the time. In the last few years, the economic condition of Japan has improved. The Emperor has, therefore, accepted the advice of his ministers that a palace should be built for him.</p>
<b>Question Description</b>	Select the option that is closest in meaning to the statement : “The Emperor refused to live in a luxurious palace”
<b>A</b>	The Emperor denied living in a luxurious palace”
<b>B</b>	The Emperor rejected staying in a luxurious palace”
<b>C</b>	The Emperor deprived himself from living in a luxurious palace”
<b>D</b>	The Emperor indicated that he was not willing to live in a luxurious palace”
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Comprehension</b>	<p>Read the Passage Below and answer the questions</p> <p>Since the end of the last World War, the Emperor has several times rejected the suggestion that a new palace should be built for him or that his existing quarters should be suitable reconstructed. The Emperor refused to live in a luxurious palace, because millions of his people were rendered homeless during the war, their standard of living had fallen and they were subject to various kinds of hardship. The Emperor and the Empress have, therefore, continued to live in the bomb-shelter. This is hardly the place the Emperor would have chosen to live in, as the floor of the bomb-shelter is wet for most of the time. In the last few years, the economic condition of Japan has improved. The Emperor has, therefore, accepted the advice of his ministers that a palace should be built for him.</p>
<b>Question Description</b>	The bomb-shelter can be aptly described as the
<b>A</b>	palace of the Emperor at present
<b>B</b>	current residence of the Emperor
<b>C</b>	present royal palace
<b>D</b>	current location of the Emperor
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	INS Vikrant, India's first home-built aircraft carrier, has formally commissioned at which place?
<b>A</b>	Naval Dockyard, Vishakapatnam
<b>B</b>	Goa Shipyard Limited
<b>C</b>	Bombay Dockyard
<b>D</b>	Cochin Shipyard Limited
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	Which city has become the new capital of Kazakhstan?
<b>A</b>	Hungary
<b>B</b>	Kiev
<b>C</b>	Nur Sultan
<b>D</b>	Astana
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	India's first Lithium Cell Manufacturing plant is launched in which state?
<b>A</b>	Arunachal Pradesh
<b>B</b>	Madhya Pradesh
<b>C</b>	Jharkhand
<b>D</b>	Andhra Pradesh
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	World Ozone Day is being celebrated on which date?
<b>A</b>	September 13
<b>B</b>	September 17
<b>C</b>	September 16
<b>D</b>	September 11
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	India's first Forest University to be established in which of the following states?
<b>A</b>	Gujarat
<b>B</b>	Rajasthan
<b>C</b>	Telangana
<b>D</b>	Uttar Pradesh
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	India's first and one of the world's largest carbon fibre plants, Reliance Industries is being set up in which state?
<b>A</b>	Rajasthan
<b>B</b>	Gujarat
<b>C</b>	Maharashtra
<b>D</b>	Uttar Pradesh
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	Who are the Star Indian Wrestlers chosen for the World Senior Championships in 2022?
<b>A</b>	Yogeshwar Dutt and VineshPhogat
<b>B</b>	Deepak Punia and Ravi Kumar Dahiya
<b>C</b>	Bajrang Punia and VineshPhogat
<b>D</b>	Ravi Kumar Dahiya and Sakshi Malik
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

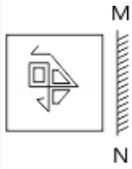
<b>Question Description</b>	World's largest museum of Harappan culture is going to be set up in which Indian state?
<b>A</b>	Gujarat
<b>B</b>	Rajasthan
<b>C</b>	Uttar Pradesh
<b>D</b>	Haryana
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	Who was named the Mumbai Indians' first head coach for the IPL 2023 season?
<b>A</b>	Mark Boucher
<b>B</b>	Virender Sehwag
<b>C</b>	Ajit Agarkar
<b>D</b>	Sunil Gavaskar
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

<b>Question Description</b>	World Bamboo Day is being observed on which date?
<b>A</b>	September 18
<b>B</b>	September 17
<b>C</b>	September 19
<b>D</b>	September 20
<b>E</b>	None of the above
<b>Correct Answer</b>	A
<b>Marks</b>	1

**Question Description**

Find correct mirror image



**A**



**B**



**C**



**D**



**E**

None of the above

**Correct Answer**

C

**Marks**

1

<b>Question Description</b>	Statements: Prime age school-going children in urban India have now become avid as well as more regular viewers of television, even in households without a TV. As a result there has been an alarming decline in the extent of readership of newspapers. Conclusions: I. Method of increasing the readership of newspapers should be devised. II. A team of experts should be sent to other countries to study the impact of TV. on the readership of newspapers.
<b>A</b>	Only conclusion I follows
<b>B</b>	Only conclusion II follows
<b>C</b>	Either I or II follows
<b>D</b>	Neither I nor II follows
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	<p><b>Study the following information carefully and answer the questions given beside.</b></p> <p>Micky is brother in law of Akku, who has two daughters but no son. Rinku is cousin of Quki and brother of Riku. Vicky has two daughters and one son. Unni has only one son and one daughter. Micky is the only sibling of Wiku. Tinu and Sanu are daughters of Xoxo. Donu is also the member of this family. Riku is granddaughter of Akku, who is married to Wiku. Unni and Vicky are sons in law of Wiku.</p> <p><b>How is Wiku related to Donu?</b></p>
<b>A</b>	Father
<b>B</b>	Mother
<b>C</b>	Grandfather
<b>D</b>	Can't be determined
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

<b>Question Description</b>	The angle of elevation of a ladder leaning against a wall is $60^\circ$ and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is:
<b>A</b>	2.3 m
<b>B</b>	4.6 m
<b>C</b>	7.8 m
<b>D</b>	9.2 m
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

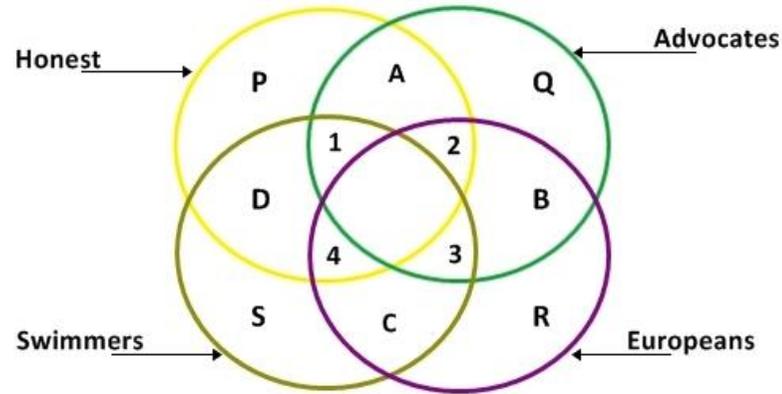
<b>Question Description</b>	A man buys a watch for Rs. 1950 in cash and sells it for Rs. 2200 at a credit of 1 year. If the rate of interest is 10% per annum, the man:
<b>A</b>	gains Rs. 55
<b>B</b>	gains Rs. 50
<b>C</b>	loses Rs. 30
<b>D</b>	gains Rs. 30
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1

<b>Question Description</b>	A tank is filled in 5 hours by three pipes A, B and C. The pipe C is twice as fast as B and B is twice as fast as A. How much time will pipe A alone take to fill the tank?
<b>A</b>	20 hours
<b>B</b>	25 hours
<b>C</b>	35 hours
<b>D</b>	Cannot be determined
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	On 8th Dec, 2007 Saturday falls. What day of the week was it on 8th Dec, 2006?
<b>A</b>	Sunday
<b>B</b>	Thursday
<b>C</b>	Tuesday
<b>D</b>	Friday
<b>E</b>	None of the above
<b>Correct Answer</b>	D
<b>Marks</b>	1

**Question Description**

5. What does the area marked 1 in the figure given below represent?



- A All honest European swimmers
- B All honest advocates who are swimmers
- C All no-European advocates who are honest swimmers
- D All non-Europeans who are honest swimmers
- E None of the above

**Correct Answer** C

**Marks** 1

<b>Question Description</b>	At 3:40, the hour hand and the minute hand of a clock form an angle of:
<b>A</b>	120°
<b>B</b>	125°
<b>C</b>	130°
<b>D</b>	135°
<b>E</b>	None of the above
<b>Correct Answer</b>	C
<b>Marks</b>	1

<b>Question Description</b>	<p><b>Read the given information carefully and answer the questions given beside:</b></p> <p>A Car moves 8m from Point A in the north direction to reach Point B. Then it turns and moves for 10m in north-west direction. Then it turns and moves 8m in south direction. Then it turns right and moves for 3m to reach point C, which is in west direction with respect to Point B. Then finally, it turns and moves for 10m in south-west direction to reach Point D, which is west direction with respect to Point A.</p> <p><b>What is the shortest distance between Point A and Point D?</b></p>
<b>A</b>	12m
<b>B</b>	15m
<b>C</b>	17m
<b>D</b>	20m
<b>E</b>	None of the above
<b>Correct Answer</b>	B
<b>Marks</b>	1