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Computer Based Examination System

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Title *	Question Paper Answer Key
OES Exam *	GPSC06202101 Assistant Professors in Government College in Physics Completed 2021-09-19

1	Question Description	If the motion of planet (of mass m) around the sun (of mass M) is treated as a two body problem, T the period of revolution, a, the semi major axis and G, the gravitational constant, then the exact form of third law of Kepler is.
	A	$\frac{T^2}{a^3} = \frac{4\pi^2(M+m)}{GMm}$
	B	$\frac{T^2}{a^3} = \frac{4\pi^2}{GMm}$
	C	$\frac{T^2}{a^3} = \frac{4\pi^2}{G(M+m)}$
	D	$\frac{T^2}{a^3} = \frac{4\pi}{GM}$
	Correct Answer	D
	Marks	1

2	Question Description	If $\hat{H} = \frac{p^2}{2m} + V(x)$, then $[x^2, [\ x^2, H]]$ simplifies to
	A	$\frac{-3\hbar^2 x^2}{2m}$
	B	$\frac{-2\hbar^2 x^2}{m}$
	C	$\frac{-4\hbar^2 x^2}{m}$
	D	$\frac{5\hbar^2 x^2}{2m}$
	Correct Answer	C
	Marks	1

3	Question Description	Which one of the following is an incorrect Boolean expression ?
	A	$PQ + P\bar{Q} = Q$
	B	$(P + \bar{Q})(P + Q) = P$
	C	$P(P + Q) = Q$
	D	$P\bar{Q}R + P\bar{Q}R + P\bar{Q}R + P\bar{Q}R = \bar{Q}$
	Correct Answer	C
	Marks	1

4

Question Description

The solution of the differential equation

$$\frac{d^2y}{dx^2} - \frac{dy}{dx} - 2y = 10 \cos x$$

is

A

$$y = C_1 e^{-x} + C_2 e^{2x} - \sin x - 3 \cos x$$

B

$$y = C_1 e^x + C_2 e^{-2x} - \sin x - 3 \cos x$$

C

$$y = C_1 e^{-x} + C_2 e^{2x} - 3x - 3 \cos x$$

D

$$y = C_1 e^x + C_2 e^{2x} - 3 \cos x$$

Correct Answer

A

Marks

1

5	Question Description	A spin 1/2 particle is in the state $S_z = \hbar/2$. The expectation values of S_x, S_x^2, S_y, S_y^2 are
	A	$0, 0, \frac{\hbar^2}{4}, \frac{\hbar^2}{4}$
	B	$\frac{\hbar^2}{4}, 0, \frac{\hbar^2}{4}, 0$
	C	$0, \frac{\hbar^2}{4}, 0, \frac{\hbar^2}{4}$
	D	$\frac{\hbar^2}{4}, \frac{\hbar^2}{4}, 0, 0$
	Correct Answer	C
	Marks	1

6	Question Description	If the Lagrangian of a system does not depend on time explicitly, then
	A	The Lagrangian is conserved
	B	The total momentum is conserved
	C	The Hamiltonian is conserved
	D	The total angular momentum is conserved
	Correct Answer	D
	Marks	1

7	Question Description	An inertial observer A at rest measures the electric and magnetic field $\vec{E}=(\alpha, 0, 0)$ and $\vec{B}=(\alpha, 0, 2\alpha)$ in a region, where α is a constant. Another inertial observer B, moving with a constant velocity with respect to A, measures the fields as $\vec{E}'=(E'_x, \alpha, 0)$ and $\vec{B}'=(\alpha, B'_y, \alpha)$. Then, in the units of $c=1$, E'_x and B'_y are respectively given by
	A	-2α and α
	B	2α and $-\alpha$
	C	α and -2α
	D	$-\alpha$ and 2α
	Correct Answer	D
	Marks	1

8	Question Description	Given : $\sum_{n=0}^{\infty} P_n(x)t^n = (1-2xt+t^2)^{-\frac{1}{2}},$ For $ t <1$, the value of $P_5(-1)$ is
	A	-1
	B	-0.5
	C	1
	D	0.25
	Correct Answer	A
	Marks	1

9	Question Description	If the partition function of a harmonic oscillator with frequency ω at a temperature T is $\frac{k_B T}{\hbar\omega}$, then the free energy of N such independent oscillators
	A	$\frac{3}{2} N k_B T$
	B	$N k_B T \ln \frac{\hbar\omega}{k_B T}$
	C	$-k_B T \ln \frac{\hbar\omega}{k_B T}$
	D	$-N k_B T \ln \frac{2k_B T}{\hbar\omega}$
	Correct Answer	B
	Marks	1

10	Question Description	A gas of molecules each having mass m is in thermal equilibrium at a temperature T . Let, v_x, v_y, v_z be the Cartesian components of velocity of a molecule. The mean value of $(v_x - \alpha v_y + \beta v_z)^2$ is
	A	$(1 + \alpha^2 - \beta^2) \frac{k_B T}{m}$
	B	$(1 + \alpha^2 + \beta^2) \frac{k_B T}{m}$
	C	$(\beta^2 - \alpha^2) \frac{k_B T}{m}$
	D	$(\alpha^2 + \beta^2) \frac{k_B T}{m}$
	Correct Answer	B
	Marks	1

11	Question Description	The conductivity of a semi conductor increases with an increase in temperature because.
	A	Relaxation time increases
	B	Number density of current carriers increases relaxation time decreases but effect of decrease in relaxation time is much less than increase in number density.
	C	Number density of charges carriers decreases
	D	Both number density of charge carriers and relaxation time increase.
	Correct Answer	B
	Marks	1
12	Question Description	A particle is subjected to a potential $V(x) = \lambda x^n$ for a stationary state. Which of the following represents the relation between average values of kinetic energy (T) and potential energy (V) ?
	A	$2\langle T \rangle = n\langle V \rangle$
	B	$\langle T \rangle = n\langle V \rangle$
	C	$\langle T \rangle = \langle V \rangle$
	D	$\langle T \rangle = 2n\langle V \rangle$
	Correct Answer	A
	Marks	1

13	Question Description	The scattering amplitude in quantum mechanics has dimension of
	A	Length
	B	Area
	C	$(\text{Length})^{\frac{1}{2}}$
	D	<i>Dimensionless</i>
	Correct Answer	D
	Marks	1

14	Question Description	The value of the integral $\int_{-\infty}^{\infty} \cos x \cdot \delta(x^2 - \pi^2) dx$ is
	A	0
	B	π
	C	$-\frac{1}{\pi}$
	D	-1
	Correct Answer	C
	Marks	1

15	Question Description	Consider a particle of electric charge 'e' and mass 'm' moving under the influence of a constant horizontal electric field 'E' and constant vertical gravitational field described by acceleration due to gravity 'g'. If the particle starts from rest, what will be its trajectory ?
	A	straight line
	B	parabolic
	C	circular
	D	elliptic
	Correct Answer	A
	Marks	1

16	Question Description	Let, (p, q) and (P, Q) be two pairs of canonical variables. The transformation $Q = \sqrt{2q} e^{-1+2a} \cos p, P = \sqrt{2q} e^{-a-1} \sin p$ is canonical for (a is a constant)
	A	0
	B	1
	C	2
	D	3
	Correct Answer	C
	Marks	1

17

Question Description	Consider a $(n \times n)$ matrix A , in which A_{ij} is the product of the indices i and j . The matrix A
A	has one degenerate eigenvalue with degeneracy $(n-1)$
B	has two degenerate eigenvalues with degeneracies 2 and $(n-2)$
C	has one degenerate eigenvalues with degeneracy n
D	does not have any degenerate eigenvalues
Correct Answer	A
Marks	1

18

Question Description

The probability that an energy level ϵ at temperature T is unoccupied by a fermion of chemical potential μ is given by

A

$$\frac{1}{\exp\left(\frac{\epsilon - \mu}{k_B T}\right) + 1}$$

B

$$\frac{1}{\exp\left(\frac{\epsilon - \mu}{k_B T}\right) - 1}$$

C

$$\frac{1}{\exp\left(\frac{\mu - \epsilon}{k_B T}\right) + 1}$$

D

$$\frac{1}{\exp\left(\frac{\mu - \epsilon}{k_B T}\right) - 1}$$

Correct Answer

C

Marks

1

19	Question Description	Let E and \vec{P} be the energy and momentum of a relativistic particle with rest mass m, then
	A	$E^2 = p^2 c^2 + m^2 c^4$
	B	$E^2 = p^2 c^2 - m^2 c^4$
	C	$E^2 = p^2 c^4 + m^2 c^2$
	D	$E^2 = \frac{1}{2} p^2 c^2 + m^2 c^4$
	Correct Answer	A
	Marks	1

20	Question Description	For a given probability distribution function $f(x) = \lambda e^{-\lambda x}, x \geq 0$ $= 0, x < 0$ where $\lambda > 0$ is known as rate parameter, the variance is
	A	0
	B	λ
	C	$\frac{1}{\lambda}$
	D	$\frac{1}{\lambda^2}$
	Correct Answer	D
	Marks	1

21	Question Description	If the peak output voltage of a full wave rectifier is 10V, its DC voltage is
	A	3.18V
	B	6.36V
	C	7.07V
	D	10.0V
	Correct Answer	B
	Marks	1

22	Question Description	The inverse of the matrix $M = \begin{bmatrix} 0 & 1 & 1 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{bmatrix}$
	A	$M - I$
	B	$M^2 - I$
	C	$1 - M^2$
	D	$1 - M$
	Correct Answer	B
	Marks	1

23	Question Description	After being hit, a cricket ball reaches a maximum height of 60 m with a speed of 20 m/s. What is the approximate speed of the ball, right after being hit ?
	A	40 m/s
	B	60 m/s
	C	80 m/s
	D	100 m/s
	Correct Answer	A
	Marks	1

24	Question Description	The number of independent components of four dimensional second rank symmetric tensor is
	A	4
	B	6
	C	10
	D	16
	Correct Answer	D
	Marks	1

25	Question Description	\hat{A} and \hat{B} represent two physical characteristics of a quantum system. If \hat{A} is Hermitian, then for the product $\hat{A}\hat{B}$ to be Hermitian, it is sufficient that
	A	\hat{B} is anti-Hermition
	B	\hat{B} is Hermition
	C	\hat{B} is Hermition and; \hat{A} and \hat{B} commute
	D	\hat{B} is Hermition and; \hat{A} and \hat{B} anti-commute
	Correct Answer	C
	Marks	1

26	Question Description	The value of integral $I = \int_0^{2\pi} \frac{d\theta}{(5+4\cos\theta)^2}$ is
	A	$\frac{10\pi}{49}$
	B	$\frac{10\pi}{17}$
	C	$\frac{8\pi}{25}$
	D	$\frac{10\pi}{9}$
	Correct Answer	B
	Marks	1

27	Question Description	An electron is confined in a cubical box of size a. The energy of the fourth excited energy state of the system is
	A	$\frac{9\pi^2\hbar^2}{2ma^2}$
	B	$\frac{6\pi^2\hbar^2}{ma^2}$
	C	$\frac{12\pi^2\hbar^2}{ma^2}$
	D	$\frac{4\pi^2\hbar^2}{ma^2}$
	Correct Answer	B
	Marks	1

28	Question Description	For which gas, the ratio of specific heats $\frac{C_p}{C_v}$ will be the largest?
	A	mono-atomic
	B	di-atomic
	C	tri-atomic
	D	hexa-atomic
	Correct Answer	A
	Marks	1

29	Question Description	Energy Eigen values of a particle of mass m, confined inside a one dimensional box of length L is given by
	A	$\frac{\hbar^2 \pi^2 n}{2mL^2}$
	B	$\frac{\hbar^2 \pi^2 L^2}{2mn^2}$
	C	$\frac{\hbar^2 \pi^2 n^2}{2mL^2}$
	D	$\frac{\hbar^2 \pi^2}{2mn^2 L^2}$
	Correct Answer	C
	Marks	1

30	Question Description	For the function $f(z) = \frac{z - \sin z}{z^3}$, the point $z=0$ is
	A	a pole of order 2
	B	a pole of order 3
	C	an essential singularity
	D	a removable singularity
	Correct Answer	D
	Marks	1

31	Question Description	If the total charge of a system is zero, then its dipole moment is
	A	zero
	B	independent of the choice of origin
	C	dependent on the choice of origin
	D	none of these
	Correct Answer	B
	Marks	1

32	Question Description	The vector $r^{n+1}\vec{r}$ will be solenoidal for ($\vec{r} \neq 0$)
	A	$n=3$
	B	$n=-3$
	C	$n=-4$
	D	$n=2$
	Correct Answer	C
	Marks	1

33	Question Description	Change in entropy of irreversible process is
	A	Zero
	B	Positive
	C	Negative
	D	Proportional to $\ln \left[\frac{K_B T}{E_0} \right]$ where E_0 is internal energy
	Correct Answer	B
	Marks	1

34	Question Description	An antenna uses e.m waves of frequency 3 MHz. For proper working the size of antenna should be
	A	250m
	B	3 km
	C	25m
	D	15 km
	Correct Answer	C
	Marks	1

35	Question Description	An electromagnetic wave of frequency ω travels in the x-direction through vacuum. It is polarized in the y-direction and the amplitude of the electric field is E_0 . With $k = \frac{\omega}{c}$, where c is the speed of the light in vacuum, the electric and the magnetic fields are then conventionally given by
	A	$\vec{E} = E_0 \cos(kx - \omega t) \hat{x}, \vec{B} = \frac{E_0}{c} \cos(ky - \omega t) \hat{y}$
	B	$\vec{E} = E_0 \cos(ky - \omega t) \hat{x}, \vec{B} = \frac{E_0}{c} \cos(ky - \omega t) \hat{z}$
	C	$\vec{E} = E_0 \cos(kx - \omega t) \hat{y}, \vec{B} = \frac{E_0}{c} \cos(kx - \omega t) \hat{z}$
	D	$\vec{E} = E_0 \cos(kx - \omega t) \hat{z}, \vec{B} = \frac{E_0}{c} \cos(kx - \omega t) \hat{y}$
	Correct Answer	C
	Marks	1

36	Question Description	Given the matrix $A = \frac{1}{3} \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$ what is the value of $\text{Det}(e^A)$?
	A	e
	B	$e^{\frac{1}{3}}$
	C	e^2
	D	e^3
	Correct Answer	A
	Marks	1

37	Question Description	After the detonation of an atom bomb, the spherical ball of gas was found to be of 15 meter radius at a temperature of $3 \times 10^5 K$. Given the adiabatic expansion coefficient $\gamma = \frac{5}{3}$, what will be the radius of the ball when its temperature reduces to $3 \times 10^3 K$?
	A	156 m
	B	50 m
	C	150 m
	D	100 m
	Correct Answer	C
	Marks	1
38	Question Description	The homogeneity of time leads to the law of conservation of
	A	linear momentum
	B	angular momentum
	C	energy
	D	parity
	Correct Answer	C
	Marks	1

39	Question Description	Which of the following quantity refers to Gibb's free energy?
	A	$U - TS + pV$
	B	$U + PV$
	C	$U - TS$
	D	U
	Correct Answer	A
	Marks	1

40	Question Description	The state of polarization of light with the electric field vector $\vec{E} = E_0 \cos(kz - wt) \hat{x} - E_0 \cos(kz - wt) \hat{y}$
	A	circularly polarized
	B	elliptically polarized with the major axis along x-axis
	C	linearly polarized along z-direction
	D	linearly polarized at -45° to x-axis
	Correct Answer	D
	Marks	1

41	Question Description	A body mass m moves in a circular orbit of radius R in a potential $V_{(r)} = \frac{-K}{r}$, where K is a constant, then its orbital angular momentum about the centre of circle is
	A	$2 R K m$
	B	$\sqrt{2 R K m}$
	C	$\sqrt{R K m}$
	D	$R K M$
	Correct Answer	C
	Marks	1

42	Question Description	In a system comprising of approximately 10^{23} distinguishable particles, each particle may occupy any of 20 distinct states. The maximum value of the entropy per particle is nearest to
	A	$3 k_B$
	B	$20 k_B$
	C	$10(\ln 2) k_B$
	D	$20(\ln 2) k_B$
	Correct Answer	A
	Marks	1

43

Question Description

The vapour pressure P (in mm of Hg) of a solid at temperature T is expressed by

$$\ln P = 23 - \frac{3863}{T}$$

and that of its liquid phase by

$$\ln P = 19 - \frac{3063}{T}$$

For triple point of the material, the temperature (in Kelvin) is

A

185

B

190

C

195

D

200

Correct Answer

D

Marks

1

44	Question Description	In the laboratory frame, a particle P of rest mass m_0 is moving in the x -direction with a speed of $\frac{5}{19}c$. It approaches an identical particle Q moving in negative direction with a speed of $\frac{2}{5}c$. The energy of the particle P in the rest frame of the particle Q is
	A	$\frac{1}{2}m_0c^2$
	B	$\frac{5}{4}m_0c^2$
	C	$\frac{19}{13}m_0c^2$
	D	$\frac{11}{9}m_0c^2$
	Correct Answer	B
	Marks	1

45	Question Description	A hydrogen atom is in a $2p$ state. What is the most probable distance separating the electron and the proton, in terms of Bohr radius, a_0 ?
	A	a_0
	B	$1.5a_0$
	C	$3a_0$
	D	$4a_0$
	Correct Answer	D
	Marks	1

46	Question Description	With $z=x+iy$, which of the following functions $f(x, y)$ is not a complex analytic function of z ?
	A	$(x+iy-8)^3(4+x^2-y^2+2ixy)^7$
	B	$(1-x+iy)^3(2+x+iy)^4$
	C	$(x+iy)^3(1-x-iy)^2$
	D	$(x^2-y^2+2ixy-8)^5$
	Correct Answer	B
	Marks	1

47	Question Description	<p>A system has unperturbed Hamiltonian, in energy units given by</p> <p>The unperturbed energy Eigen values of system are</p> $\begin{bmatrix} 15 & 0 & 0 & 0 \\ 0 & 3 & 0 & 0 \\ 0 & 0 & 3 & 0 \\ 0 & 0 & 0 & 3 \end{bmatrix}$
	A	(15, 3, 3, 3)
	B	(-3, -15, -3, -3)
	C	(6, 3, 15, 9)
	D	(-3, -3, -15, -12)
	Correct Answer	A
	Marks	1

48

Question Description	The minimum number of NAND gates required to construct an OR gate is:
A	2
B	5
C	4
D	3
Correct Answer	D
Marks	1

49

Question Description	The net charge of an p-type semiconductor is
A	zero
B	negative
C	positive
D	dependent
Correct Answer	A
Marks	1

50

Question Description

The Eigen values of the matrix $\begin{bmatrix} 0 & -i \\ i & 0 \end{bmatrix}$ are

A

0

B

0 and 1

C

-1 and 0

D

1 and -1

Correct Answer

D

Marks

1

51

Comprehension

Shakespeare did not rely on the stage-carpenter or the scenic painter. He puts his scenery in his lines. There you will find mountains and river and seas, valleys and cliffs, violets and clouds, and over all “the firmament fretted with golden fire.” He cared little for plot, little for surprise. He did not rely on stage effects or red fire. The plays grow before your eyes and they grow as the morning comes. Plot surprises but once. There must be something in the play besides surprise. The plot in an author is a kind of strategy – that is to say, a sort of cunning—and cunning does not belong to the highest natures. There is in Shakespeare such a wealth of thought that the plot becomes almost immaterial; and such is this wealth that you can hardly know the play—there is too much. After you have heard it again and again. It seems as pathless as an untrodden forest.

Question Description

As per the implicit meaning of the above passage, Shakespeare

A

did not trust hisstage-carpenter

B

disapproved of the scenic painter

C

preferred to have very little stage design

D

complemented stage design with verbal expression

Correct Answer

D

Marks

1

52

Comprehension

Shakespeare did not rely on the stage-carpenter or the scenic painter. He puts his scenery in his lines. There you will find mountains and river and seas, valleys and cliffs, violets and clouds, and over all “the firmament fretted with golden fire.” He cared little for plot, little for surprise. He did not rely on stage effects or red fire. The plays grow before your eyes and they grow as the morning comes. Plot surprises but once. There must be something in the play besides surprise. The plot in an author is a kind of strategy – that is to say, a sort of cunning—and cunning does not belong to the highest natures. There is in Shakespeare such a wealth of thought that the plot becomes almost immaterial; and such is this wealth that you can hardly know the play—there is too much. After you have heard it again and again. It seems as pathless as an untrodden forest.

Question Description

The passage shows that Shakespeare

A

wrote plays where the plot is immaterial

B

avoids an element of surprise in his plot

C

wrote complex, dense and intriguing plays

D

confuses the reader as the play moves on

Correct Answer

C

Marks

1

53

Comprehension

Shakespeare did not rely on the stage-carpenter or the scenic painter. He puts his scenery in his lines. There you will find mountains and river and seas, valleys and cliffs, violets and clouds, and over all “the firmament fretted with golden fire.” He cared little for plot, little for surprise. He did not rely on stage effects or red fire. The plays grow before your eyes and they grow as the morning comes. Plot surprises but once. There must be something in the play besides surprise. The plot in an author is a kind of strategy – that is to say, a sort of cunning—and cunning does not belong to the highest natures. There is in Shakespeare such a wealth of thought that the plot becomes almost immaterial; and such is this wealth that you can hardly know the play—there is too much. After you have heard it again and again. It seems as pathless as an untrodden forest.

Question Description

Identify the most obvious figure of speech in the statement, “the firmament fretted with golden fire.”

A

alliteration; metaphor; hyperbole

B

transferred epithet; simile; personification

C

hyperbole; personification; simile

D

simile; alliteration; hyperbole

Correct Answer

A

Marks

1

54

Comprehension	Shakespeare did not rely on the stage-carpenter or the scenic painter. He puts his scenery in his lines. There you will find mountains and river and seas, valleys and cliffs, violets and clouds, and over all “the firmament fretted with golden fire.” He cared little for plot, little for surprise. He did not rely on stage effects or red fire. The plays grow before your eyes and they grow as the morning comes. Plot surprises but once. There must be something in the play besides surprise. The plot in an author is a kind of strategy – that is to say, a sort of cunning—and cunning does not belong to the highest natures. There is in Shakespeare such a wealth of thought that the plot becomes almost immaterial; and such is this wealth that you can hardly know the play—there is too much. After you have heard it again and again. It seems as pathless as an untrodden forest.
Question Description	The statement, “It seems as pathless as an untrodden forest,” refers to
A	the dramatic talent of Shakespeare
B	the Shakespearean drama as a whole
C	the value of strategy in writing a play
D	the wealth of thought in Shakespeare’s plays
Correct Answer	D
Marks	1

55

Comprehension

Shakespeare did not rely on the stage-carpenter or the scenic painter. He puts his scenery in his lines. There you will find mountains and river and seas, valleys and cliffs, violets and clouds, and over all “the firmament fretted with golden fire.” He cared little for plot, little for surprise. He did not rely on stage effects or red fire. The plays grow before your eyes and they grow as the morning comes. Plot surprises but once. There must be something in the play besides surprise. The plot in an author is a kind of strategy – that is to say, a sort of cunning—and cunning does not belong to the highest natures. There is in Shakespeare such a wealth of thought that the plot becomes almost immaterial; and such is this wealth that you can hardly know the play—there is too much. After you have heard it again and again. It seems as pathless as an untrodden forest.

Question Description

Read the following statement and identify, from the given options, its implicit significance within the passage as a whole: “The plot in an author is a kind of strategy- that is to say, a sort of cunning-and cunning does not belong to the highest natures.”

A

Shakespeare is hardly using any plot strategy or cunning in his plays

B

Shakespeare, like other authors, needs to have a strategy to write his plays

C

Shakespeare as a playwright of highest nature uses minimal plot or surprise

D

Shakespeare as an extraordinary playwright did not need plot or surprise

Correct Answer

C

Marks

1

56

Question Description	'Mission Vatsalya' for women who lost their husbands due to COVID-19 has been launched in which state?
A	Madhya Pradesh
B	Maharashtra
C	Gujarat
D	Haryana
Correct Answer	B
Marks	1

57

Question Description	Zair-Al-Bahr is a naval exercise between India and which country?
A	Qatar
B	Oman
C	UAE
D	USA
Correct Answer	A
Marks	1

58

Question Description	India's highest altitude herbal park has been recently inaugurated in which state?
A	Uttarakhand
B	Uttar Pradesh
C	Haryana
D	Bihar
Correct Answer	A
Marks	1

59

Question Description	Ohmium International has launched India's first green hydrogen electrolyzer giga factory at which city?
A	Kolkata
B	Bengaluru
C	Haridwar
D	Guwahati
Correct Answer	B
Marks	1

60	Question Description	The International Dog Day is celebrated on which date?
	A	August 12
	B	August 26
	C	August 27
	D	August 31
	Correct Answer	B
	Marks	1

61	Question Description	What is the name of the chatbot developed by Bharat Petroleum Corporation Ltd?
	A	Sugar
	B	Urja
	C	Vijay
	D	Sathi
	Correct Answer	B
	Marks	1

62

Question Description	World Senior Citizen Day is found globally on which date?
A	August 21
B	August 23
C	August 28
D	August 24
Correct Answer	A
Marks	1

63

Question Description	Haryana Chief Minister Manohar Lal Khattar has announced to rename which airport as Maharaja Agrasen International Airport?
A	Rohtak Airport
B	Hisar Airport
C	Chandigarh Airport
D	New Delhi Airport
Correct Answer	B
Marks	1

64

Question Description	The State Bank of India (SBI) recently inaugurated an ATM on a Houseboat in which city?
A	Shillong
B	Guwahati
C	Srinagar
D	Kohima
Correct Answer	C
Marks	1

65

Question Description	The government of India has allowed Women to sit in which exam recently for the first time in India?
A	UPSC CSE
B	AFCAT
C	NDA
D	CDS
Correct Answer	C
Marks	1

66

Question Description	There is clear evidence that the mandated use of safety belts has resulted in fewer fatalities over the past five years. Compared to the five-year period prior to the passage of laws requiring the use of safety seats, fatalities of this kind have decreased by 30 percent. Which one of the following, if true, most substantially strengthens the argument above?
A	The number of serious automobile accidents involving use of safety belts has remained steady over the past five years.
B	Automobile accidents involving use of safety belts have decreased sharply over the past five years.
C	The use of air bags in automobiles has increased by 30 percent over the past five years.
D	Most fatal automobile accidents involving use of safety belts occur in the driveway of their home.
Correct Answer	B
Marks	1

67

Question Description

Each of these questions contains six statements followed by four sets of combinations of three. Choose the set in which the statements are logically related.

- A. Laxman is a man.
- B. Meera is Laxman's wife.
- C. Some women are islands.
- D. No man is an island.
- E. Meera is not an island.
- F. Laxman is not a island.

A

ADE

B

ABE

C

ADF

D

CDE

Correct Answer

C

Marks

1

68	Question Description	Gopal went to a fruit market with certain amount of money. With this money he can buy either 50 oranges or 40 mangoes. He retains 10% of the money for taxi fare. If he buys 20 mangoes, then the number of oranges he can buy is
	A	25
	B	20
	C	18
	D	6
	Correct Answer	B
	Marks	1

69	Question Description	Efficiency of A is twice as that of B. If they work together, they can complete a job in 18 days. If A alone does the job, in how many days he will complete the job?
	A	27 days
	B	36 days
	C	40 days
	D	54 days
	Correct Answer	D
	Marks	1

70

Question Description

Each of these questions contains six statements followed by four sets of combinations of three. Choose the set in which the statements are logically related.

- A. College students are intelligent.
- B. Intelligence is a collegian's attribute.
- C. Ram's sister is a college student.
- D. Ram is a college student.
- E. All intelligent persons go to college.
- F. Ram is an intelligent person.

A

ADF

B

BCD

C

ABF

D

ABD

Correct Answer

A

Marks

1

71	Question Description	Our school district should not spend its money on the new remedial English reading program. After all, our students get all the reading practice they need by studying history and science. The argument above depends on which the following assumptions?
	A	The remedial English reading program would not help the students learn history and science.
	B	Other reading programs are just as effective but less expensive than the remedial English reading program.
	C	The remedial English reading program involves only reading practice.
	D	Teaching students history and science is more important than teaching them reading skills.
	Correct Answer	A
	Marks	1

72	Question Description	A third standard teacher gave a simple multiplication exercise to the kids. But one kid reversed the digits of both the numbers and carried out the multiplication and found that the product was exactly the same as the one expected by the teacher. Only one of the following pairs of numbers will fit in the description of the exercise. Which one is that?
	A	14, 22
	B	13, 62
	C	19, 33
	D	42, 28
	Correct Answer	B
	Marks	1

73

Comprehension

A professor keeps data on the students tabulated by performance and sex of the student. The data is kept on a computer disc but the professor loses some of the data due to a virus. Only the following information could be recovered.

	Performance			Total
	Average	Good	Excellent	
Male			10	
Female				32
Total		30		

An expert committee was formed which verified the following:

Half the students were either excellent or good.

40 % of the students were females.

One-third of the male students were average.

Question Description

How many students are female and excellent?

A 0

B 8

C 16

D 32

Correct Answer A

Marks 1

74

Comprehension

A professor keeps data on the students tabulated by performance and sex of the student. The data is kept on a computer disc but the professor loses some of the data due to a virus. Only the following information could be recovered.

	Performance			Total
	Average	Good	Excellent	
Male			10	
Female				32
Total		30		

An expert committee was formed which verified the following:

Half the students were either excellent or good.

40 % of the students were females.

One-third of the male students were average.

Question Description

What proportion of good students are males?

A

0

B

0.73

C

0.4

D

1

Correct Answer

B

Marks

1

Comprehension

A professor keeps data on the students tabulated by performance and sex of the student. The data is kept on a computer disc but the professor loses some of the data due to a virus. Only the following information could be recovered.

	Performance			Total
	Average	Good	Excellent	
Male			10	
Female				32
Total		30		

An expert committee was formed which verified the following:

Half the students were either excellent or good.

40% of the students were females.

One-third of the male students were average.

Question Description

What proportion of female students is good?

A

0

B

0.25

C

0.5

D

1

Correct Answer

B

Marks

1