

Que. 1 If 'F' is the force acting on a particle of mass 'm' performing simple harmonic motion, then the time period of the simple harmonic motion is equal to _____.

1. $2\pi \sqrt{k/m}$
2. $2\pi \sqrt{m/k}$
3. $1/(2\pi) \times \sqrt{m/k}$
4. $1/(2\pi) \times \sqrt{k/m}$

Correct Option - 2

Que. 2 Velocity of sound is maximum in:

1. hydrogen
2. vacuum
3. steel
4. water

Correct Option - 3

Que. 3 The dimension of Plank's constant is _____.

1. [MLT]
2. $[ML^1T^{-1}]$
3. $[ML^2T^{-1}]$
4. $[ML^2T^{-2}]$

Correct Option - 3

Que. 4 A magnet of magnetic moment M is situated with its axis along the direction of a magnetic field of strength B. The work done in rotating it by an angle of 180° will be:

1. -MB
2. +MB
3. +2MB
4. Zero

Correct Option - 3

Que. 5 Two coplanar concurrent forces of magnitude 3 kN and 4 kN makes an angle 60° with each other, then the magnitude of resultant is:

1. 4.03 kN
2. 3.25 kN
3. 6.08 kN
4. 7 kN

Correct Option - 3

Que. 6 When a beam of white light incident on a prism undergoes dispersion then the _____ of the constituent colors of white light.

1. red colour bends the most as it has the lowest wavelength
2. violet colour bends the most as it has the lowest wavelength
3. violet colour bends the most as it has the highest wavelength
4. violet colour bends the most as it has the lowest frequency

Correct Option - 2

Que. 7 Which of the following is correct regarding Faraday's Law?

1. Change in magnetic flux can cause a voltage to be induced.
2. The induced emf can not generate the current.
3. Increase in number of turns in a coil will decrease induced emf
4. All of the above statements are correct.

Correct Option - 1

Que. 8 The Carnot's engine working between 400 K and 800 K has a work output of 1200 J per cycle. The amount of heat energy supplied to the engine from the source in each cycle is:

1. 2400 J
2. 1600 J
3. 3200 J
4. 1800 J

Correct Option - 1

Que. 9 if kinetic energy of a 2 kg mass object has been changed by 3 kJ by a 1000 N force acting along the line of motion on a smooth surface, then displacement made by the object is _____

1. 2 m
2. 3 m
3. 1 m
4. 4 m

Correct Option - 2

Que. 10 One feels heavier in a lift when the lift

1. is going down steadily
2. just begin to go up
3. is moving up steadily
4. descends freely

Correct Option - 2

Que. 11 The correct order of electromagnetic spectrum with decreasing frequency is:

1. Microwaves, Radiowaves, Infrared rays, Ultraviolet rays, X-rays
2. Radiowaves, Infrared rays, Ultraviolet rays, Microwaves, X-rays
3. X-rays, Infrared rays, Microwaves, Radiowaves, Ultraviolet rays

4. X-rays, Ultraviolet rays, Infrared rays, Microwaves, Radiowaves

Correct Option - 4

Que. 12 What is the unit of the pole strength of a magnet?

1. A-m
2. A-m²
3. A/m²
4. A/m

Correct Option - 1

Que. 13 The wavelength of a light in a medium is 400 nm and the frequency of the light is 3×10^{14} Hz. Find the refractive index of light in that medium.

1. 1.5
2. 2.5
3. 1.33
4. 2

Correct Option - 2

Que. 14 Till what temperature (in °C) should a gas at 27°C be heated so as to increase its volume by 40% keeping pressure constant?

1. 400°C
2. 147°C
3. 200°C
4. 247°C

Correct Option - 2

Que. 15 Consider a circular ring of mass 1 kg and diameter 0.2 m. It is making 10 rotations per second about an axis passing through its centre and normal to the surface. The value of angular momentum is:-

1. 0.628 kg m²/sec
2. 0.4 kg m²/sec
3. 1.256 kg m²/sec
4. 0.2 kg m²/sec

Correct Option - 1

Que. 16 In an isothermal expansion of the gas the final volume becomes double of the initial volume, then which of the following statement is correct:

1. The final pressure will be double of the initial pressure
2. The final pressure will be half of the initial pressure
3. The final pressure will be equal to the initial pressure
4. None of these

Correct Option - 2

Que. 17 The magnetic flux through a 50-turn coil increases at the rate of 0.05 Wb/s. What is the induced emf between the ends of the coil?

1. 2.5 V
2. 5 V
3. 10 V
4. 25 V

Correct Option - 1

Que. 18 The condition for a thermodynamic process to be adiabatic:

1. $\Delta Q = 0$
2. $\Delta T = 0$
3. $\Delta V = 0$
4. $\Delta W = 0$

Correct Option - 1

Que. 19 A 700 gm solid cube having an edge of length 10 cm floats in water. How much volume of the cube is outside the water? The density of the water 1000 kgm^{-3}

1. 300 cm^3
2. 100 cm^3
3. 400 cm^3
4. 200 cm^3

Correct Option - 1

Que. 20 An electric bulb rated 200 V and 100 W is connected to a 160 V power supply. What power will be consumed by the bulb?

1. 64 W
2. 80 W
3. 100 W
4. 160 W

Correct Option - 1

Que. 21 110 joule of heat is added to a gaseous system, whose internal energy is 40 J. Then the amount of external work done is

1. 150 J
2. 70 J
3. 110 J
4. 40 J

Correct Option - 2

Que. 22 The temperature of a gas is increased by 27°C . Then what is the equivalent increase on Kelvin scale is

1. 27 K

2. 273.9 K
3. 102 K
4. 30 K

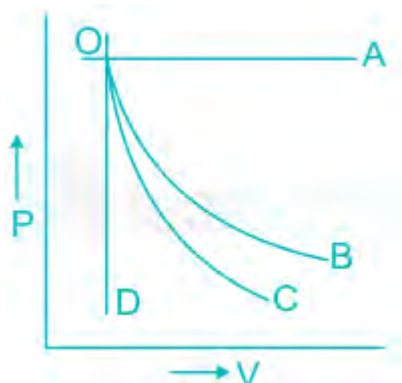
Correct Option - 1

Que. 23 If the refractive index of water is $\frac{4}{3}$ and that of glass is $\frac{5}{3}$, then the critical angle of incidence for light tending to go from glass to water is:

1. $\sin^{-1} \left(\frac{3}{4} \right)$
2. $\sin^{-1} \left(\frac{3}{5} \right)$
3. $\sin^{-1} \left(\frac{4}{5} \right)$
4. $\sin^{-1} \left(\frac{2}{3} \right)$

Correct Option - 3

Que. 24



A graph of pressure versus volume for an ideal gas for different processes is as shown. In the graph curve OC represents

1. isothermal process
2. isobaric process
3. adiabatic process
4. isochoric process

Correct Option - 3

Que. 25 The magnitude of the magnetic field at a far distance along the axis of the solenoid is B. If the current in the solenoid is doubled then the magnetic field at that point will become:

1. B
2. 2B
3. 4B
4. None of these

Correct Option - 2

Que. 26 What is $\frac{2 \tan \theta}{1 + \tan^2 \theta}$ equal to?

1. $\cos 2\theta$
2. $\tan 2\theta$

3. $\sin 2\theta$
4. $\operatorname{cosec} 2\theta$

Correct Option - 3

Que. 27 The roots of the equation $3x^2 + 8x + 9 = 0$ are α, β , then equation whose roots are $\frac{1}{\alpha}, \frac{1}{\beta}$ is

1. $3x^2 - 8x + 9 = 0$
2. $9x^2 - 8x + 3 = 0$
3. $9x^2 + 8x + 3 = 0$
4. $3y^2 + 9y + 8 = 0$

Correct Option - 3

Que. 28 One card is drawn from a well shuffled pack of 52 cards. Find the probability that it is a king.

1. $\frac{1}{4}$
2. $\frac{1}{52}$
3. $\frac{1}{26}$
4. None of these.

Correct Option - 4

Que. 29 What is the equation of a straight line which passes through (3, 4) and sum of the whose x and y intercepts is 14?

1. $4x + 3y = 24$
2. $x + y = 14$
3. $4x - 3y = 0$
4. $3x + 4y = 25$

Correct Option - 1

Que. 30 If $\vec{a} = (\vec{i} + 2\vec{j} - 3\vec{k})$ and $\vec{b} = (3\vec{i} - \vec{j} + 2\vec{k})$ then the angle between $(\vec{a} + \vec{b})$ and $(\vec{a} - \vec{b})$ is?

1. $\pi / 3$
2. $\pi / 4$
3. $\pi / 2$
4. $2\pi / 3$

Correct Option - 3

Que. 31 The value of $\tan(\cos^{-1} \frac{3}{5} + \tan^{-1} \frac{1}{4})$ is

1. $\frac{19}{8}$
2. $\frac{8}{19}$
3. $\frac{19}{12}$
4. $\frac{3}{4}$

Correct Option - 1

Que. 32 Find the length of the latus rectum of the parabola $y^2 = -12x$?

1. 8
2. 12
3. 10
4. None of these

Correct Option - 2

Que. 33 The value of $\int_0^{\frac{\pi}{2}} \frac{dx}{1+\tan^3 x}$ is

1. 0
2. 1
3. $\pi/2$
4. $\pi/4$

Correct Option - 4

Que. 34 $\lim_{x \rightarrow 0} \frac{\sin(2+x) - \sin(2-x)}{x} = ?$

1. $\frac{1}{2} \cos 2$
2. 1
3. $2 \cos 2$
4. 9

Correct Option - 3

Que. 35 In the expansion of $(1+x)^{50}$ the sum of the coefficients of odd powers of x is:

1. 0
2. 2^{49}
3. 2^{50}
4. 2^{51}

Correct Option - 2

Que. 36 $\tan \theta = \frac{-3}{4}$ and θ lies in the second quadrant, then $\sin \theta$ is equal to

1. $\frac{2}{5}$
2. $\frac{2}{3}$
3. $\frac{3}{5}$
4. $\frac{4}{5}$

Correct Option - 3

Que. 37 The radius of the circle $x^2 + y^2 + x + c = 0$ passing through the origin is

1. $1/4$
2. $1/2$
3. 1
4. 2

Correct Option - 2

Que. 38 $\int_{-1}^1 \frac{2x+1}{(x^2+x+1)^2} dx =$

1. $-\frac{1}{3}$
2. $\frac{1}{3}$
3. $\frac{2}{3}$
4. $-\frac{2}{3}$

Correct Option - 3

Que. 39 The value of $i^3 + i^6 + i^9$, where $i = \sqrt{-1}$, is

1. 1
2. -1
3. i
4. $-i$

Correct Option - 2

Que. 40 $\int \frac{1}{e^x + e^{-x}} dx =$

1. $\log |\cot(e^x) + \tan(e^x)|$
2. $\sin^{-1}(e^x) + c$
3. $\log |1 + e^x|$
4. $\tan^{-1}(e^x) + c$

Correct Option - 4

Que. 41 Average of all the natural numbers less than 150 is:

1. 70
2. 72
3. 75
4. 80

Correct Option - 3

Que. 42 Determine k so that the line $y = 2x + k$ may touch the ellipse $3x^2 + 5y^2 = 15$

1. $\pm\sqrt{23}$
2. $\pm\sqrt{32}$

3. $\pm\sqrt{18}$
4. None of these

Correct Option - 1

Que. 43 Find the 4th term from the end in the expansion $(\frac{x}{2} - x)^{15}$

1. $\frac{455x^{15}}{8}$
2. $\frac{45x^5}{8}$
3. $-\frac{425x^{15}}{8}$
4. $\frac{8x^{13}}{91}$

Correct Option - 1

Que. 44 The locus of poles of normal chord to the parabola $y^2 = 4ax$ is

1. $(x + 2a)y^2 - 4a^3 = 0$
2. $(x + 2a)y^2 + 4a^3 = 0$
3. $(x - 2a)y^2 + 4a^3 = 0$
4. $(x - 2a)y^2 - 4a^3 = 0$

Correct Option - 2

Que. 45 The inverse of a matrix A is given by $\begin{bmatrix} -2 & 1 \\ \frac{3}{2} & -\frac{1}{2} \end{bmatrix}$ What is A equal to?

1. $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$
2. $\begin{bmatrix} 1 & -2 \\ -3 & 4 \end{bmatrix}$
3. $\begin{bmatrix} 1 & 2 \\ 3 & -4 \end{bmatrix}$
4. $\begin{bmatrix} -1 & 2 \\ 3 & 4 \end{bmatrix}$

Correct Option - 1

Que. 46 If -2 is the one of the roots of a quadratic equation $x^2 + 3x + 2 = 0$, then the other root is.

1. 2
2. -1
3. 1
4. 3

Correct Option - 2

Que. 47 In a G.P. tenth term is 9 and fourth term is 4, then its seventh term will be-

1. 8

2. 6
3. 9
4. 7

Correct Option - 2

Que. 48 Find the order and degree of the differential equation $(\frac{d^3y}{dx^3})^2 = \sqrt{\frac{dy}{dx} + 1}$?

1. 3, 4
2. 4, 3
3. 2, 1
4. 1, 2

Correct Option - 1

Que. 49 What is $\lim_{x \rightarrow 4} \frac{3 - \sqrt{5+x}}{x-4}$ equal to?

1. $-\frac{1}{2}$
2. $-\frac{1}{6}$
3. $\frac{1}{6}$
4. $-\frac{1}{5}$

Correct Option - 2

Que. 50 Argument and modulus of $\frac{1+i}{1-i}$ are respectively

1. $-\frac{\pi}{2}$ and 1
2. $\frac{\pi}{2}$ and $\sqrt{2}$
3. 0 and $\sqrt{2}$
4. $\frac{\pi}{2}$ and 1

Correct Option - 4

Que. 51 Some parts of the sentence have errors and some are correct. Find out which part has an error and mark that part as your answer. If there are no errors, mark 'No error' as your answer.

Hardly had he departed that the phone rang.

1. Hardly had
2. he departed that
3. the phone rang
4. No error

Correct Option - 2

Que. 52 Identify the part of the sentence which has an error in it. In case there is no error the answer will be (D).

Ram has an (A)/ large amount (B)/ of money. (C)/ No error (D)

1. A

2. B
3. C
4. D

Correct Option - 1

Que. 53 Select the segment in the sentence, which contains the grammatical error.

They had to wait for the luggages to be put into the cab before they themselves got into it.

1. They had to wait
2. before they themselves got into it
3. to be put into the cab
4. for the luggages

Correct Option - 4

Que. 54 Select the option that can be used as a one-word substitute for the given group of words.

A decision on which one cannot go back

1. Irrevocable
2. Improbable
3. Incredible
4. Incurable

Correct Option - 1

Que. 55 Choose the correctly spelt word.

1. Peirce
2. comfortable
3. Luxuries
4. Individual

Correct Option - 2

Que. 56 Select the most appropriate synonym of the given word.

STERN

1. strict
2. mild
3. lenient
4. gentle

Correct Option - 1

Que. 57 Direction: In the following questions, choose the word opposite in meaning to the given word.

Condemn

1. Castigate
2. Strut
3. Command
4. Commend

Correct Option - 4

Que. 58 Direction: Choose the most suitable answer to fill the blank:

If you had told me you needed a ride, I _____ earlier.

1. would have left
2. would have been left
3. will have left
4. will be leaving

Correct Option - 1

Que. 59 Direction: Choose the most effective word for the blank from the options given below.

Hardly had I reached my office _____ I got your message.

1. than
2. before
3. after
4. when

Correct Option - 4

Que. 60 Choose the option with the appropriate question tag for the given sentence:

George has never been to India, _____

1. has he?
2. has George?
3. hasn't he?
4. hasn't George?

Correct Option - 1

Que. 61 Direction: Choose the option that best transforms the sentence into its other voice:

We added up the money and found it was correct.

1. Adding up the money it was found it to be correct by us.
2. Adding up the money we found it to be correct.
3. The money was added up and found to be correct.
4. The money is added up by us and found to be correct.

Correct Option - 3

Que. 62 Direction: Choose the option that best transforms the sentence into its direct / indirect form:

Can the children get tasty meals at school?

1. I asked if the children can be getting tasty meals at school.
2. I asked if the children could get tasty meals at school?
3. I asked if the children can they get tasty meals at school?
4. I asked if the children could get tasty meals at school.

Correct Option - 4

Que. 63 Arrange the parts(1), (2), (3) and (4) of the following sentences to create meaningful sentences and choose the right option accordingly.

- 1) people think they're
 - 2) Blackberry phones used to be
 - 3) old-fashioned gadgets
 - 4) extremely popular, but now many
1. 4, 3, 1, 2
 2. 3, 1, 2, 4
 3. 4, 1, 3, 2
 4. 2, 4, 1, 3

Correct Option - 4

Que. 64 Given here are four jumbled sentence. Pick the option that gives the correct order.

- A. One day, Maytag's company will create a product
- B. which will wash 660 million loads of laundry per week
- C. and become an empire worth 1.7 billion dollars,
- D. found in over 80 per cent of American households.

1. BADC
2. BDCA
3. ABDC
4. ABCD

Correct Option - 4

Que. 65 Select the noun form of the given word:

Different

1. Difference
2. Differ
3. Differently
4. Differentness

Correct Option - 1

Que. 66 Direction: Find out which part has an error and mark it as your answer. If there is no error, mark 'No error' as your answer.

No sooner did she see her teacher (A) / when she (B) / stopped copying. (C) / No error (D)

1. (A)
2. (B)
3. (C)
4. (D)

Correct Option - 2

Que. 67 Directions: Read the following passage and answer the given questions:

Religion and science have often been viewed as having conflicting ideologies, with one relying on faith and the other on evidence. However, many argue that these two concepts can coexist and even complement each other. Religion can provide a moral framework and a sense of purpose, while science can explain the natural world and how it operates. One way in which religion and science can coexist is through the concept of intellect. Religion provides a moral framework and a sense of purpose, while science explains the natural world and how it operates. One example of this coexistence is in the study of the origins of the universe. Many religions have creation myths that describe how the world came to be, while science has the Big Bang theory. Both perspectives offer unique insights and understandings of the origins of the universe, and neither necessarily contradicts the other.

In conclusion, religion and science are not mutually exclusive. They can coexist and even complement one another, providing a deeper understanding of the world and our place in it. Both offer unique perspectives and insights, and neither necessarily contradicts the other. The key is to approach each with an open mind and a willingness to consider different perspectives.

What is the relationship between religion and science?

1. Religion and science have had a simple relationship throughout history.
2. Science is a systematic method for understanding the natural world.
3. Religion and science can coexist and even complement each other.
4. Science is seen as a threat to traditional religious beliefs.

Correct Option - 3

Que. 68 What is the key to approaching religion and science according to the passage?

1. Religion and science can both provide valuable insights and understanding.
2. The key is to approach each with an open mind and a willingness to consider different perspectives.
3. The key is to avoid conflating the two; religion and science are mutually exclusive.
4. Many religious beliefs are not in opposition to scientific facts and theories.

Correct Option - 2

Que. 69 Select the most appropriate ANTONYM of the given word.
"INTELLECT"

1. Genius
2. Wizard
3. Stupidity
4. Sage

Correct Option - 3

Que. 70 Give an example of how religion and science coexist in the study of the origins of the universe.

1. Many religions have creation myths, while science has the Big Bang theory.
2. Scientists have used telescopes and other observational techniques to study the history of the universe, while theologians have used scriptures.
3. The universe is believed to have been created by the god Brahma.
4. The big bang theory is a scientific explanation for the origins of the universe.

Correct Option - 1