Navik GD

Memory Based Paper

(Section I + II)

26 April 2025

110 Questions

Que. 1 The Non-Cooperation Movement started in which year?

1. 1900
2. 1920
3. 1940
4. 1935

Correct Option **- 2**

Que. 2 What is the Capital of Uganda ?

1. Kampala
2. Malabo
3. Bangkok
4. Kuala Lumpur

Correct Option **- 1**

Que. 3 Who amongst the following discovered Radium?

1. Albert Einstein
2. Michael Faraday
3. Marie Curie
4. Richard Feynmann

Correct Option **- 3**

Que. 4 Which of the following is an input device?

1. Projector
2. Scanner
3. Monitor
4. Speaker

Correct Option **- 2**

Que. 5 Who is the recipient of the Major Dhyan Chand Khel Ratna Award 2024 for his outstanding contribution to sports?

1. Virat Kohli
2. Neeraj Chopra
3. Manika Batra
4. Harmanpreet Singh

Correct Option - **4**

Que. 6 What is the unit of Torque?

1. kg/cm^2
2. Kg/cm
3. Kg-cm
4. gm/cc

Correct Option - **3**

Que. 7 An object A with a mass m and velocity v has a kinetic energy of 100 J. Then the kinetic energy of an object B with a mass of 2 m and velocity v is:

1. 300 J
2. 200 J
3. 50 J
4. 400 J

Correct Option - **2**

Que. 8 What is the SI unit for electric flux?

1. $N\ m\ C^{-1}$
2. $N\ C^{-1}\ m^2$
3. $N^{-1}\ m\ C^2$
4. None of the above

Correct Option - **2**

Que. 9 Electron-Volt (eV) is the unit of _____.

1. electric potential
2. electric power
3. electric energy
4. electric force

Correct Option - **3**

Que. 10 What is the dimensional formula of the universal gravitational constant?

1. $M^{-1}\ L^3\ T^{-2}$
2. $M^{-1}\ L^3\ T^{-1}$
3. $M^{-1}\ L^2\ T^{-2}$

4. $M^0 L^0 T^0$

Correct Option - **1**

Que. 11 Unit of power is _____

1. Watt
2. Kilowatt
3. Horsepower
4. All of the above

Correct Option - **4**

Que. 12 _____ does not obey newton's law of motion.

1. Real force
2. Pseudo force
3. Both Real and Pseudo force
4. None of the above

Correct Option - **2**

Que. 13 Which of the following instruments is used to measure pressure?

1. Barometer
2. Anemometer
3. Thermometer
4. Hygrometer

Correct Option - **1**

Que. 14 The atomic mass of carbon-12 isotope is:

1. 12 u
2. 14 u
3. 6 u
4. 16 u

Correct Option - **1**

Que. 15 The SI unit of Luminous intensity is _____.

1. Mole
2. Candela
3. Kelvin
4. Ampere

Correct Option - **2**

Que. 16 Select the option that is related to the third number in the same way as the second number is related to the first number.

356 : 21 :: 269 : ?

1. 25
2. 23
3. 39
4. 21

Correct Option - **4**

Que. 17 In a family of seven with two married couples, M is the brother of N and the cousin of R. P and Q are brothers. N is the niece of S and T is the aunt of R. How is T related to M?

1. Mother
2. Sister
3. Aunt
4. Grandmother

Correct Option - **1**

Que. 18 Select the option that is related to the third number in the same way as the second number is related to the first number.

9 : 107 :: 8 : ?

1. 112
2. 100
3. 98
4. 96

Correct Option - **4**

Que. 19 A series is given with one term missing. Choose the correct alternatives from the given ones that will complete the series.

15, 26, 48, 81, 125, ?

1. 160
2. 150
3. 170
4. 180

Correct Option - **4**

Que. 20

What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and '×' and '÷' are interchanged?

109 - 55 × 605 ÷ 77 + 93 = ?

1. 82
2. 23
3. 42
4. 53

Correct Option **- 2**

Que. 21 In a certain code language, 'ALPINE' is coded as '171' and 'SPRING' is coded as '83'. How will 'CAPITAL' be coded in that language?

1. 93
2. 124
3. 186
4. 62

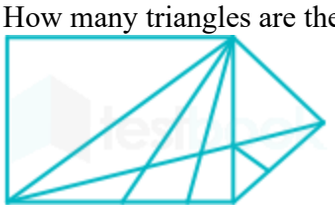
Correct Option **- 3**

Que. 22 Select the figure that will replace the question mark (?) in the following figure series.

1. 
2. 
3. 
4. 

Correct Option **- 4**

Que. 23 How many triangles are there in the given figure ?



1. 23
2. 24
3. 25
4. 27

Correct Option - **3**

Que. 24 In a certain code language, MAGIC is coded as NZTHX and FLUID is coded as UOTHW. How will be HORSE coded in that language?

1. SLIHV
2. SNIHV
3. SNIHD
4. SLIHD

Correct Option - **3**

Que. 25 Which of the following terms will replace the question mark (?) in the given series?
AXY, EZW, ICU, OHS, ?

1. UOQ
2. UPQ
3. UNQ
4. VOQ

Correct Option - **1**

Que. 26 The ratio of the monthly incomes of Radha and Rani is 3 : 2 and their expenditure ratio is 8 : 5 if each of them is saving Rs. 9,000 per month, then find the sum of the monthly incomes of Radha and Rani?

1. Rs. 132,000
2. Rs. 145,000
3. Rs. 135,000
4. Rs. 119,000

Correct Option - **3**

Que. 27 The HCF of two numbers is 9 and their LCM is 252. The sum of numbers is:

1. 108
2. 78

3. 90
4. 99

Correct Option - **4**

Que. 28 If a - b = 4 and $a^3 - b^3 = 88$, then find the value of $a^2 - b^2$.

1. $8\sqrt{6}$
2. $6\sqrt{6}$
3. $7\sqrt{2}$
4. $9\sqrt{6}$

Correct Option - **1**

Que. 29 What is the least number that leaves 7 as the remainder in each case, when divided by 10, 14, 12 and 8?

1. 821
2. 847
3. 842
4. 829

Correct Option - **2**

Que. 30 Sum of the digits of a two-digit number is 10. If 18 is added to the number, then the digits are reversed. What is the number?

1. 46
2. 27
3. 37
4. 62

Correct Option - **1**

Que. 31 Simple interest on a sum for 10 years is equal to 5% of the principle. In how many years interest will be equal to the principle?

1. 100
2. 150
3. 200
4. 250

Correct Option - **3**

Que. 32 What are the values of k for which the equation $4x^2 - kx + 9 = 0$ has real roots?

1. $k \leq -12$ and $k \geq 12$
2. $-12 < k < 12$

3. $12 < k < -12$
4. $-12 \leq k \leq 12$

Correct Option - **1**

Que. 33 Simplify: $\frac{5}{28} \div \frac{28}{35} \div \frac{20}{112}$

1. 4/5
2. 5/4
3. 4/7
4. 7/4

Correct Option - **2**

Que. 34 A wheel travels a distance of 44 km in 5000 revolutions. What is radius (in meter) of the wheel?

1. 1.4
2. 1.2
3. 1.5
4. 1.8

Correct Option - **1**

Que. 35 Three cubes each of sides 7 cm are joined end to end. Find the surface area of the resulting solid.

1. 686 cm^2
2. 686 cm
3. 882 cm^2
4. 882 cm

Correct Option - **1**

Que. 36 A train passes a platform in 48 seconds and a passenger standing on the platform in 30 seconds. If the speed of the train is 72 km/hr, what is the length of the platform?

1. 440m
2. 380m
3. 360m
4. 400m

Correct Option - **3**

Que. 37 A shopkeeper decides to raise the marked price of an article by 10%, How much discount should he allow so as to be able to sell the article at the original marked price?

1. 19/2%
2. 73/9%

3. 100/11%
4. 10%

Correct Option - **3**

Que. 38 A and B working together can complete a job in 30 days. The ratio of their efficiencies is 3 : 2. In how many days can the faster person complete the job?

1. 50
2. 30
3. 40
4. 60

Correct Option - **1**

Que. 39 A man covers a certain distance by scooter at 64 km/h and he returns to the starting place riding a bicycle at 16 km/h. Find the average speed for the whole journey.

1. 25.6 km/h
2. 26.5 km/h
3. 40 km/h
4. 51.2 km/h

Correct Option - **1**

Que. 40 Twenty workers finish a piece of work in 30 days. After how many days should 5 workers leave the job so that the work is completed in 35 days?

1. 15 days
2. 20 days
3. 10 days
4. 5 days

Correct Option - **1**

Que. 41 If $x + 1/x = 1$, then, find the value of $x^2 + 1/x^2 + 6$ is-

1. 4
2. 5
3. 6
4. 8

Correct Option - **2**

Que. 42 Three successive discounts of 20%, 25% and 15% are given. What will be the net discount (in percentage)?

1. 60
2. 49
3. 55
4. 65

Correct Option **- 2**

Que. 43 If $\sin\theta = 5/13$, then find the value of $(\cot\theta - \tan\theta)/2\cot\theta$?

1. 143/195
2. 119/254
3. 173/288
4. 119/288

Correct Option **- 4**

Que. 44 If Rs. 25,000 is to be divided between A, B and C in the ratio 1/10 : 1/6 : 1/15, then how much will C get (in Rs)?

1. 5000
2. 7500
3. 10000
4. 12500

Correct Option **- 1**

Que. 45 A seller gives 1 item free on purchase of every 4 articles. If the seller also gives a 10% discount and still earns 10% profit then find the ratio of marked price and cost price.

1. 55 : 36
2. 13 : 8
3. 12 : 7
4. 13 : 9

Correct Option **- 1**

Que. 46 **Direction: Select the most appropriate synonym of the given word.**
Wealthy

1. Affluent
2. Depressed
3. Poor
4. Lacking

Correct Option **- 1**

Que. 47 **Select the most appropriate word to fill in the blank.**

He _____ for me when I reached office,

1. had waited
2. waited
3. was waiting
4. waits

Correct Option **- 3**

Que. 48 **Choose the appropriate preposition for the given sentence.**

We are pleased to offer it to you _____ a discounted price.

1. at
2. over
3. in
4. on

Correct Option **- 1**

Que. 49 Select the most appropriate ANTONYM of the given word.

Hesitate

1. Reform
2. Vacillate
3. Imitate
4. Resolve

Correct Option **- 4**

Que. 50 Fill in the blank with appropriate modal verb :

When I was a boy, I _____ walk forty miles in a day.

1. should
2. can
3. could
4. must

Correct Option **- 3**

Que. 51 **Select the most appropriate meaning of the given idiom.**

Red-letter day

1. a very special day
2. a frightful day
3. a very cold day

4. a very hot day

Correct Option - **1**

Que. 52 **Select the correct direct form of the given sentence.**

He said that he was sorry for all that.

1. “I am sorry for all then.” He says.
2. “I was sorry for all this.” He said.
3. “I am sorry for all that.” He says.
4. “I am sorry for all this.” He said.

Correct Option - **4**

Que. 53 **Choose the correct active voice of the given sentence from the options below:**

The decision was taken by me.

1. I have taken the decision.
2. I had taken the decision.
3. I took the decision.
4. I take decision.

Correct Option - **3**

Que. 54 **Select the most appropriate synonym of the given word.**

CATASTROPHE

1. restraint
2. calamity
3. expansion
4. prosperity

Correct Option - **2**

Que. 55 **Select the most appropriate option to improve the underlined segment in the given sentence. If there is no need to improve it, select 'no improvement required'.**

The first step in making a kite is to fasten two sticks of bamboo together in the form of a cross.

1. in making a kite is to be fastened
2. in making a kite is to fastening
3. into making a kite is fasten
4. no improvement required

Correct Option - **4**

Que. 56 **Direction: In the following question, find out which part of the sentence has an error. If there is no error, (d) is the answer.**

No sooner had the hockey match started (a)/ when it began (b)/ to rain. (c)/ No Error. (d)

1. a
2. b
3. c
4. d

Correct Option **- 2**

Que. 57 Select the word which means the same as the group of words given.

One who walks on street

1. On-looker
2. Bystander
3. Motorist
4. Pedestrian

Correct Option **- 4**

Que. 58 **A sentence has been given with a blank to be filled with an appropriate option. Choose the correct alternative.**

I always try to _____ chocolates for you.

1. brought
2. bought
3. bringing
4. bring

Correct Option **- 4**

Que. 59 Read the following passage and answer the question that follows:

With Manuel Neuer's unexpected injury, Bayern Munich has recruited Borussia Mönchengladbach's Yann Sommer, who will be the leading man until the season's end. But how appealing is being the backup goalkeeper for Germany? Manuel Neuer's injury during a post-World Cup ski trip put Bayern Munich in a precarious spot.

The 36-year-old is expected to miss the remainder of the current season after breaking his leg in a skiing accident. Though perhaps not the keeper he once was, Neuer's loss is not ideal for a club with consistently high aspirations, winning the Champions League among them.

Bayern's goalkeeper situation was a frequent news topic over the holidays, with the defending league champions linked with various big names before eventually recruiting Yann Sommer from Borussia Mönchengladbach—the Swiss goalkeeper has signed a contract until June 2025.

"Yann Sommer is a valuable addition for us because he has a wealth of international experience and has already played in the Bundesliga for many years," Bayern CEO and former goalkeeper Oliver Kahn said as part of a club statement. "He has everything required to contribute immediately to our success." "We're certain we can achieve our goals with Yann Sommer."

How did the Bayern Munich goalkeeper get injured?

1. He met with a car accident
2. He fell down during training session
3. because of a skiing accident
4. None of the above

Correct Option **- 3**

Que. 60 Which is the former team of Yann Sommer?

1. Bayern Munich
2. Borussia Dortmund
3. Borussia Mönchengladbach
4. None of the above

Correct Option **- 3**

Que. 61 Find the value of cos (-1740°)?

1. 0
2. √3 / 2
3. 1 / 2
4. 1

Correct Option **- 3**

Que. 62 If A = {1, 2, 3, 4, 5}, then the number of subsets of A which contain element 2 but not 4, is

1. 2
2. 4
3. 6
4. 8

Correct Option **- 4**

Que. 63 What is the value of tan 15°?

1. $1 - \sqrt{3}$
2. $2 + \sqrt{3}$
3. $2 - \sqrt{3}$
4. None of the above

Correct Option **- 3**

Que. 64 The middle term of $\left(1-\frac{x^2}{2}\right)^{14}$ is

1. $-\frac{423}{16}x^{13}$
2. $-\frac{429}{16}x^{16}$
3. $-\frac{429}{16}x^{14}$
4. $-\frac{423}{16}x^{14}$

Correct Option **- 3**

Que. 65 Evaluate: $2\tan^2 45° + \cos^2 30° - \sin^2 60°$

1. 1/2
2. 2
3. 0
4. 1

Correct Option **- 2**

Que. 66 Square root of 4 + 3i is

1. $\pm\left(\frac{1}{\sqrt{2}}+\mathrm{i}\frac{3}{\sqrt{2}}\right)$
2. $\pm\left(\frac{3}{\sqrt{2}}-\mathrm{i}\frac{1}{\sqrt{2}}\right)$
3. $\pm\left(\frac{5}{\sqrt{2}}+\mathrm{i}\frac{3}{\sqrt{2}}\right)$
4. $\pm\left(\frac{3}{\sqrt{2}}+\mathrm{i}\frac{1}{\sqrt{2}}\right)$

Correct Option **- 4**

Que. 67 The conjugate of the complex number $\frac{3\mathrm{i}+4}{2-3\mathrm{i}}$ is:

1. $\frac{-1}{13}-\frac{18}{13}\mathrm{i}$
2. $\frac{18}{13}\mathrm{i}+\frac{1}{13}$
3. $\frac{18}{13}\mathrm{i}-\frac{1}{13}$
4. $\frac{1}{13}-\frac{18}{13}\mathrm{i}$

Correct Option **- 1**

Que. 68 If A = {2, 3, 4} and B = {3, 5} then A ∪ B will be:

1. {3, 5}
2. ϕ
3. {2, 3, 4, 5}

4. {2, 3}

Correct Option - **3**

Que. 69 (n+2) ! = 2550 × n !, then n is:

1. 50
2. 49
3. 52
4. 48

Correct Option - **2**

Que. 70 The number of three English letter words, having at least one consonant, but not having two consecutive consonants, is

1. 2205
2. 3780
3. 2730
4. 3360

Correct Option - **2**

Que. 71 If the direction ratios a, b, c of a line L satisfy the relations ab + bc + ca = 0 and 6 ab + 9 bc + 8 ca = 0, then the direction cosines of the line L are

1. $\frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}}$
2. $\frac{2}{\sqrt{7}}, \frac{1}{\sqrt{7}}, \frac{-2}{\sqrt{7}}$
3. $\frac{-1}{\sqrt{6}}, \frac{\sqrt{3}}{\sqrt{6}}, \frac{\sqrt{2}}{\sqrt{6}}$
4. $\frac{-3}{7}, \frac{2}{7}, \frac{-6}{7}$

Correct Option - **4**

Que. 72 If $A = \begin{bmatrix} 4 & -3 \\ 1 & 0 \end{bmatrix}$ then $A + A^T$ is equal to ?

1. $\begin{bmatrix} 4 & -2 \\ -3 & 0 \end{bmatrix}$
2. $\begin{bmatrix} 8 & -2 \\ -3 & 0 \end{bmatrix}$
3. $\begin{bmatrix} 8 & -2 \\ -2 & 0 \end{bmatrix}$
4. $\begin{bmatrix} 8 & -2 \\ -2 & 3 \end{bmatrix}$

Correct Option - **3**

Que. 73 Suppose A and B are two independent events such that P(B) = 0.4 and P(AUB) = 0.8. The value of P(A) is:

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

Correct Option - **2**

Que. 74 If $y = e^{\sin x}$, then what is $\frac{dy}{dx}$ equal to ?

1. $\cos x\, e^{\sin x}$
2. $\sin x\, e^{\cos x}$
3. $-\cos x\, e^{\sin x}$
4. $-\sin x\, e^{\cos x}$

Correct Option - **1**

Que. 75 If $y = (x^x)^x$, then what is the value of $\frac{dy}{dx}$ at x = 1?

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

Correct Option - **2**

Que. 76 Find the value of $\int \frac{\cos 2x}{\cos x} dx$

1. $2\sin x - \ln(\sec x + \tan x) + C$
2. $2\sin x + \ln(\sec x - \tan x) + C$
3. $2\sin x + \ln(\sec x + \tan x) + C$
4. $2\sin x - \ln(\sec x - \tan x) + C$

Correct Option - **1**

Que. 77 Solution of $\frac{dy}{dx} = 1 + \tan(y - x)$ is

1. $\sin(y + x) = e^{-x} + C$
2. $\sin(y - x) = e^{x} + C$
3. $\cos(y - x) = e^{-x} + C$

4. $\cos(y - x) = e^x + C$

Correct Option - **2**

Que. 78 $\int \sqrt{1+\sec x}\, dx$ equals

1. $\sin^{-1}\left[\sqrt{2}\sin\frac{x}{2}\right] + C$
2. $\frac{1}{\sqrt{2}}\sin^{-1}\left[\sqrt{2}\sin\frac{x}{2}\right] + C$
3. $2\sin^{-1}\left[\sqrt{2}\sin\frac{x}{2}\right] + C$
4. $\sqrt{2}\cos^{-1}\left[\sqrt{2}\cos\frac{x}{\sqrt{2}}\right] + C$

Correct Option - **3**

Que. 79 The mean of n observations

1, 4, 9, 16 ...., n^2 is 130. What is the value of n?

1. 18
2. 19
3. 20
4. 21

Correct Option - **2**

Que. 80 Find the cofactor matrix for the matrix $A = \begin{bmatrix} -1 & 2 & 3 \\ -2 & 3 & 5 \\ 4 & -2 & 1 \end{bmatrix}$?

1. $\begin{bmatrix} 13 & 22 & 8 \\ 8 & -13 & 6 \\ 1 & -1 & 1 \end{bmatrix}$
2. $\begin{bmatrix} 13 & 22 & -8 \\ -8 & -13 & 6 \\ 1 & -1 & 1 \end{bmatrix}$
3. $\begin{bmatrix} 13 & 22 & 8 \\ 8 & 13 & 6 \\ 1 & 1 & 1 \end{bmatrix}$
4. None of these

Correct Option - **2**

Que. 81 Determine the value of p for which $p(\hat{i} + \hat{j} + \hat{k})$ is a unit vector?

1. $\pm\frac{1}{\sqrt{3}}$

2. $\pm\frac{2}{\sqrt{3}}$
3. $\pm\frac{1}{3}$
4. $\sqrt{3}$

Correct Option - **1**

Que. 82 Find the scalar triple product of vectors $\vec{a} = \hat{i} + \hat{j} + \hat{k}$, $\vec{b} = 6\hat{i} + 6\hat{j} + 6\hat{k}$ *and* $\vec{c} = 2\hat{i} + 3\hat{j} + \hat{k}$

1. 1
2. 0
3. 2
4. 3

Correct Option - **2**

Que. 83 The equation of the circle passing through the foci of the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$, and having centre at $(0, 3)$ is

1. $x^2 + y^2 - 6y + 7 = 0$
2. $x^2 + y^2 - 6y - 5 = 0$
3. $x^2 + y^2 - 6y + 5 = 0$
4. $x^2 + y^2 - 6y - 7 = 0$

Correct Option - **4**

Que. 84 What is the value of $\lim\limits_{x\to\infty} \frac{\sin x}{x}$?

1. 1
2. 0
3. ∞
4. -1

Correct Option - **2**

Que. 85 Integral of $\sec^2 x$ with respect to sec x is

1. tan x + C
2. sec x + C
3. $\frac{\tan^3 x}{3} + c$
4. $\frac{\sec^3 x}{3} + c$

Correct Option - **4**

Que. 86 The percentage error in the measurement of the mass of a body is 1% and the percentage error in the measurement of velocity is 2%. Find the percentage error in the estimation of the kinetic energy of a body.

1. 2 %
2. 3 %
3. 4 %
4. 5 %

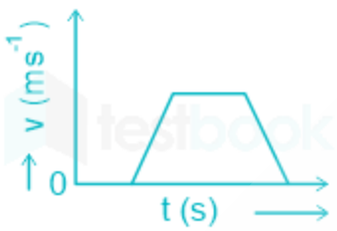
Correct Option **- 4**

Que. 87 A constant retarding force of 50 N is applied to a body of mass 20 kg moving initially with a speed of 15 ms^{-1}. How long does the body take to stop?

1. 6 s
2. 2.5 s
3. 15 s
4. 50 s

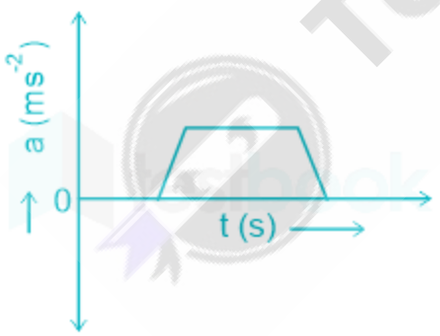
Correct Option **- 1**

Que. 88 The velocity (v) – time (t) plot of the motion of a body is shown below:

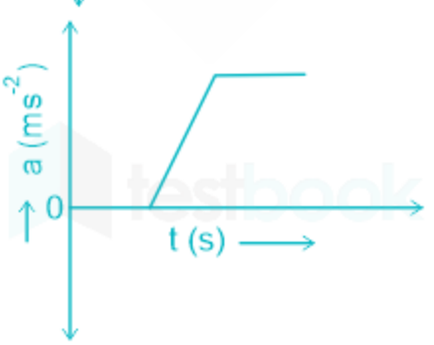


The acceleration (a) – time (t) graph that best suits this motion is :

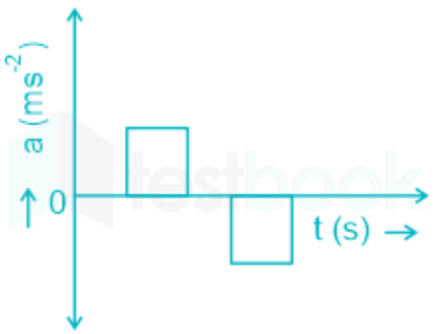
1.



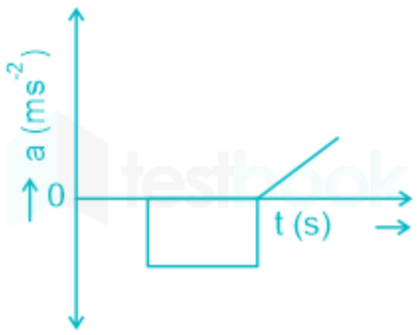
2.



3.



4.



Correct Option **- 3**

Que. 89 If $|\overline{P} + \overline{Q}| = |\overline{P}| = |\overline{Q}|$ then the angle between $\overline{P}$ and $\overline{Q}$ is

1. 0°
2. 120°
3. 60°
4. 90°

Correct Option **- 2**

Que. 90 A balloon and its content having mass M is moving up with an acceleration 'a'. The mass that must be released from the content so that the balloon starts moving up with an acceleration '3a' will be : (Take 'g' as acceleration due to gravity)

1. $\frac{3Ma}{2a-g}$
2. $\frac{3Ma}{2a+g}$
3. $\frac{2Ma}{3a+g}$
4. $\frac{2Ma}{3a-g}$

Correct Option **- 3**

Que. 91 When the displacement of a spring is reduced to half its original value, and the spring constant remains unchanged, what happens to the spring's potential energy?

1. It decreases to 1/2 of its original value
2. It decreases to 1/4 of its original value
3. It increases to 2 times its original value
4. It remains unchanged

Correct Option - **2**

Que. 92 The initial angular velocity of an object is 10 rad/s. After 10 seconds the angular velocity becomes 20 rad/s. Find the angular acceleration of the object.

1. 1 rad/s^2
2. 1 rad/s
3. 10 rad/s^2
4. 10 rad/s

Correct Option - **1**

Que. 93 A car of mass 500 kg and maximum velocity 50 m/s can safely take a turn around a banked road without slip, what should be the maximum velocity of a truck with mass 750 kg taking the same turn?

1. 100 m/s
2. 75 m/s
3. 50 m/s
4. 35 m/s

Correct Option - **3**

Que. 94 A ball falling from height h m rebounces to 9 m height. If coefficient of restitution e = 0.5, then value of h will be:

1. 6 m
2. 9 m
3. 18 m
4. 36 m

Correct Option - **4**

Que. 95 The mass of man is 72 kg at earth. The value of g at the moon's surface is 1/6 of that on the earth. The mass of man at the moon will be

1. 12 kg
2. 120 kg
3. 72 kg
4. 432 kg

Correct Option - **3**

Que. 96 The Earth revolves around the Sun in an elliptical orbit, its speed

1. Is greatest when it is farthest from the Sun
2. Is greatest when it is closest to the Sun

3. Remains the same at all points on the orbit.
4. Goes on decreasing continuously

Correct Option - **2**

Que. 97 The de Broglie wavelengths of a proton and an α particle are λ and 2λ respectively. The ratio of the velocities of proton and α particle will be :

1. 1 : 8
2. 1 : 2
3. 4 : 1
4. 8 : 1

Correct Option - **4**

Que. 98 What percent of the total volume of an iceberg floats above the water surface? Assume the density of ice to be 920 kg/m^3 and the density of water to be 1000 kg/m^3 .

1. 6
2. 8
3. 92
4. 20

Correct Option - **2**

Que. 99 A Carnot engine whose efficiency is 40% takes in heat from a source at a temperature 500 K. If it is desired to have a Carnot engine of efficiency 60%, then the source temperature for the same sink temperature must be:

1. 600 K
2. 750 K
3. 1000 K
4. 1200 K

Correct Option - **2**

Que. 100 A child swinging on a swing in sitting position, stands up. Then the time period of swing will:

1. decrease
2. remain same
3. increase
4. None of these

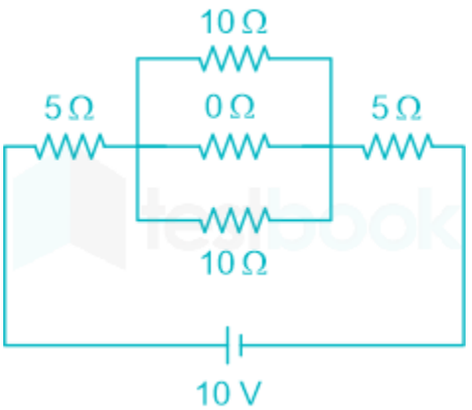
Correct Option - **1**

Que. 101 The electric field at a distance $\frac{3R}{2}$ from the center of a charged conducting spherical shell of radius R is E. The electric field at a distance $\frac{R}{2}$ from the center of the sphere is

1. Zero
2. E
3. $\frac{E}{2}$
4. $\frac{E}{3}$

Correct Option - **1**

Que. 102 Consider the following electric circuit:



The current in the above electric circuit is:

1. 1 A
2. (10/15) A
3. 2 A
4. 1.5A

Correct Option - **1**

Que. 103 For which one of the following, 'Diodes' are generally used for?

1. Rectification
2. Amplification
3. Modulation
4. Filtration

Correct Option - **1**

Que. 104 What is the name of the device used to convert AC to DC?

1. Inverter
2. Rectifier
3. Transformer
4. Generator

Correct Option - **2**

Que. 105 A proton and an alpha particle moving with same kinetic energy enter in the region of uniform magnetic field perpendicular to it. The ratio of radii of their trajectories will be:

1. 1 : 1
2. $\sqrt{2}$: 1
3. 4 : 1
4. 1 : $\sqrt{2}$

Correct Option **- 1**

Que. 106 A 220-volt input is supplied to a transformer. The output circuit draws a current of 2.0 ampere at 440 volts. If the efficiency of the transformer is 80%, the current drawn by the primary windings of the transformer is

1. 5.0 ampere
2. 3.6 ampere
3. 2.8 ampere
4. 2.5 ampere

Correct Option **- 1**

Que. 107 A chock coil of negligible resistance connected to 220 volt A.C. source- The 5 mA current flows through it. The average power consumed by chock coil is:

1. zero
2. 11 watt
3. 44×10^3 watt
4. 1.1 watt

Correct Option **- 1**

Que. 108 A setting sun appears at a higher altitude than its real position due to

1. diffraction of light
2. dispersion of light
3. scattering of light
4. refraction of light

Correct Option **- 4**

Que. 109 Two lenses of power -15D and +5D are in contact with each other. The focal length of the combination is

1. -0.1 cm
2. -10 cm
3. -20 cm
4. +10 cm

Correct Option **- 2**

Que. 110 Which of the following waves CANNOT be polarised?

1. Acoustic waves
2. Light waves
3. X - rays
4. Radio waves

Correct Option **- 1**