Airforce Group X

70 Questions

Que. 1 **Direction - Choose the correct "Noun Form" of the given word.**

Congratulate

1. Congratulated
2. Congratulation
3. Congratulates
4. Congratulating

Solution Correct Option **- 2**

Que. 2 **Direction - Fill in the blank with the correct answer.**

Besides his parents, he _____ also present at the function.

1. were
2. had
3. have
4. was

Solution Correct Option **- 4**

Que. 3 **Direction - Fill in the blank with the correct article.**

_____ thing of beauty is a joy forever.

1. The
2. A
3. An
4. No article

Solution Correct Option **- 2**

Que. 4 **In the following question, out of the four alternatives, choose the one which can be substituted for the given words/ sentence.**

An accident which results in death

1. Fatal
2. Dangerous
3. Terrible
4. Injurious

Solution Correct Option **- 1**

Que. 5 **Direction - Fill in the blank with suitable conjunction.**

He will never pass, _____ hard he may try.

1. However
2. Never
3. Whenever
4. Whatever

Solution Correct Option **- 1**

Que. 6 Direction: Choose the plural form of the given word.

Hero

1. Heroies
2. Heroes
3. Heros
4. Heroine

Solution   Correct Option **- 2**

Que. 7 Direction - Fill in the blank with suitable word.

Barking dogs _____ bite.

1. Regularly
2. Rarely
3. Seldom
4. Frequently

Solution   Correct Option **- 3**

Que. 8 Select the most appropriate antonym of the given word.

Consecutive

1. Discontinuous
2. Successive
3. Following
4. Succeeding

Solution   Correct Option **- 1**

Que. 9 Direction: Choose the word MOST SIMILAR in meaning to the given word.

Barren

1. Infertile
2. Bold
3. Berserk
4. Bide

Solution   Correct Option **- 1**

Que. 10 In the following question, a sentence has been given in Active/Passive voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in a Passive/Active voice.

The cobbler was mending my shoes.

1. My shoes were being mended by the cobbler.
2. My shoes was being mended by the cobbler.
3. My shoes were mended by the cobbler.
4. My shoes will be being mended by the cobbler.

Solution   Correct Option **- 1**

Que. 11 In the given question, four words are given out of which one word is correctly spelt. Choose the correctly spelt word.

1. Twelth

2. Twelfth

3. Tweluth

4. Twelthe

Solution Correct Option - **2**

Que. 12 **Four alternatives are given for the Idiom/Phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the Idiom/Phrase.**

Kick one's heels

1. To fight

2. Run away

3. Be disgusted

4. Pass time idly while having to wait for someone or something.

Solution Correct Option - **4**

Que. 13 **Identify the segment in the sentence which contains a grammatical error.**

Neither Sam nor I are interested in attending the meeting.

1. Neither Sam nor I

2. are interested

3. in attending

4. the meeting

Solution Correct Option - **2**

Que. 14 **Identify the correct preposition**

The dog was moving fast, but still it was accompanied _____ a little cat moving behind it.

1. At

2. From

3. By

4. Through

Solution Correct Option - **3**

Que. 15 **Direction: Change the sentence from direct speech to indirect speech.**

Ram said to me, "You can teach me."

1. Ram told me that I could teach him.

2. Ram said that I can teach him.

3. Ram told me that I can teach me.

4. Ram told me that he can teach me.

Solution Correct Option - **1**

Que. 16 **In the following question, parts of a sentence have been jumbled and labelled as P, Q, R, and S. You are required to rearrange the jumbled parts of the sentence and mark your response accordingly by selecting the correct option.**

P. was flabbergasted

Q. at Sachin's

R. behavior

S. The manager

1. QPRS
2. SPQR
3. SQRP
4. QSPR

Solution Correct Option - **2**

Que. 17 | **Direction**: Read the passage given below and answer the question that follows:

An old miser lived in a house with a garden. The miser hid his gold coins in a pit under some stones in the garden. Every day, before going to bed, the miser went to the stones where he hid the gold and counted the coins. He continued this routine every day, but not once did he **spend** the gold he saved. One day, a thief who knew the old miser's routine, waited for the old man to go back into his house. After it was dark, the thief went to the hiding place and took the gold. The next day, the old miser found that his treasure was missing and started crying loudly. His neighbour heard the miser's cries and inquired about what happened. On learning what happened, the neighbour asked, "Why didn't you save the money inside the house? It would've been easier to access the money when you had to buy something!" "Buy?", said the miser. "I never used gold to buy anything. I was never going to spend it." On hearing this, the neighbour threw a stone into the pit and said, "If that is the case, save the stone. It is as worthless as the gold you have lost".

What is the moral of the passage?
1. Do not get greedy. Be happy and content with what you have
2. Nobody trusts a liar, even when he is telling the truth
3. Wealth is everything
4. Wealth not used is wealth that does not exist

Solution   Correct Option - **4**

Que. 18 | What did the miser hide under some stones?
1.   silver coins
2.   gold coins
3.   jewellery
4.   food

Solution   Correct Option - **2**

Que. 19 | Who said these lines, 'If that is the case, save the stone. It is as worthless as the gold you have lost."?
1.   the miser
2.   the thief
3.   the neighbour
4.   the sheriff

Solution   Correct Option - **3**

Que. 20 | Which of the following words could replace the word **'spend'** as used in the passage?
1.   secure
2.   search
3.   expend
4.   expand

Solution   Correct Option - **3**

Que. 21 The electromagnetic waves don't transport-

1. Energy
2. Electric charge
3. Momentum
4. All of the above

Solution   Correct Option - **2**

Que. 22 Newton's first Law of motion gives the concept of

1. Inertia
2. Momentum
3. displacement
4. Work

Solution   Correct Option - **1**

Que. 23 If dQ is the heat given to thermodynamic system and dU is its change in internal energy and dW is the work done by the system, then the first law of thermodynamics concludes that:

1. $dQ = dW$
2. $dQ = dU - dW$
3. $dQ = dW + dU$
4. $dQ = dU$

Solution   Correct Option - **3**

Que. 24 Find the dimension of 'η' in the Stoke's Law formula ?

1. $[M^0LT^{-2}]$
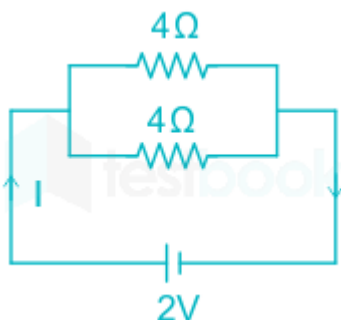2. $[ML^{-1}T^{-2}]$
3. $[ML^{-1}T^{-1}]$
4. $[M^1LT^{-2}]$

Solution   Correct Option - **3**

Que. 25 What is the value of the Stefan-Boltzman constant?

1. 5.67×10^{-10} W/m^2 K^4
2. 5.67×10^{-6} W/m^2 K^4
3. 5.67×10^8 W/m^2 K^4
4. 5.67×10^{-8} W/m^2 K^4

Solution   Correct Option - **4**

Que. 26 Find the value of the current across both resistors?

1. 0.5 A
2. 1 A
3. 1.5 A
4. 3 A

Solution Correct Option - **1**

Que. 27 If the de Broglie wavelength of the particle is 0.2 Å. Then find the momentum of the particle

1. 3×10^{-34} kg m/s
2. 6.3×10^{-10} kg m/s
3. 6.3×10^{-13} kg m/s
4. 3.3×10^{-23} kg m/s

Solution Correct Option - **4**

Que. 28 A Carnot heat engine takes heat from a reservoir at 127° C and rejects heat to a sink at 27°C. Its efficiency will be

1. 20 %
2. 25 %
3. 30 %
4. 50 %

Solution Correct Option - **2**

Que. 29 The reciprocal of resistance is

1. Conductance
2. Resistivity
3. Conductivity
4. Drift velocity

Solution Correct Option - **1**

Que. 30 If the absolute refractive indices of glass and water are 3 / 2 and 4 / 3 respectively, what will be the ratio of velocity of light in glass and water?

1. 3 : 4
2. 4 : 3
3. 8 : 7
4. 8 : 9

Solution Correct Option - **4**

Que. 31 Magnification produced by a rear view mirror fitted in vechicles

1. is less than one
2. is more than one
3. is equal to one
4. can be more than or less than one depending upon the position of the object in front of it

Solution Correct Option - **1**

Que. 32 If 1 kg of wood absorbs 200 KJ of heat energy, and its temperature changes from 25°C to 150°C. In this case, what will be the specific heat of wood?

1. 2000 Jkg^{-1} °C^{-1}
2. 1600 Jkg^{-1} °C^{-1}
3. 1000 Jkg^{-1} °C^{-1}
4. 4000 Jkg^{-1} °C^{-1}

Solution Correct Option - **2**

Que. 33 A charge particle of mass 'm' and charge 'q' is moving with a speed 'v' in a magnetic field B. If the radius of the circular path traced by a charge particle is 'r'. Then find the ratio of q/m.

1. $\frac{q}{m} = \frac{v}{Br}$
2. $\frac{q}{m} = \frac{vB}{B}$
3. $\frac{q}{m} = \frac{vr}{B}$
4. $\frac{q}{m} = \frac{B}{vr}$

Solution   Correct Option - **1**

Que. 34 A transverse wave passing through a string with equation y = 3 sin (4t - π/6) . Here 'y' is in meter and 't' is in seconds. Calculate the maximum velocity of the particle in a wave motion.

1. 4 m/s
2. 8 m/s
3. 12 m/s
4. 16 m/s

Solution   Correct Option - **3**

Que. 35 With the rise of temperature, the conductivity of a semi-conductor:

1. remains unchanged
2. decreases
3. increases
4. nothing is certain

Solution   Correct Option - **3**

Que. 36 If G is the gravitational constant, g is the acceleration due to gravity, and R is the radius of the earth, then the expression for the mass of the earth will be

1. gR^2G
2. $\frac{GR^2}{g}$
3. $\frac{gR^2}{G}$
4. $\frac{gG}{R^2}$

Solution   Correct Option - **3**

Que. 37 What is electrostatic field at a distance r from a point charge q proportional to?

1. 1/r
2. r
3. r^2
4. $1/r^2$

Solution Correct Option - **4**

Que. 38 The basic principle on which the AC generator works is-
1. Electromagnetic induction
2. Energy conservation
3. Lenz law
4. Momentum conservation

Solution Correct Option - **1**

Que. 39 A car travels one-third of the distance at a speed of 60 km/hr and remaining distance of 30 km/hr. Then the average speed of the car for the whole journey is:
1. 30 km/hr
2. 36 km/hr
3. 40 km/hr
4. 45 km/hr

Solution Correct Option - **2**

Que. 40 If a man of 80 kg weight takes an object to a certain height in time 12 sec and another man of 60 kg weight takes an object to the same height in 11 sec, then find the ratio of the power
1. 11 : 9
2. 9 : 11
3. 12 : 11
4. 11 : 12

Solution Correct Option - **1**

Que. 41 The moment of inertia of a rigid body depends on-
1. mass of the body
2. position of the rotational axis
3. shape and size of the body
4. All of the above

Solution Correct Option - **4**

Que. 42 The electrical resistivity of the material of a conductor is ρ. If the resistance and volume of the conductor is 3 Ω and 3 m^3, then find the length of the conductor.
1. $l = \frac{1}{3\sqrt{\rho}}$
2. $l = \frac{\sqrt{\rho}}{3}$
3. $l = \frac{3}{\sqrt{\rho}}$
4. $l = 3\sqrt{\rho}$

Solution Correct Option - **3**

Que. 43 Which of the following material is not a ferromagnetic material?
1. Iron
2. Silver

3. Nickel
4. Cobalt

Solution Correct Option - **2**

Que. 44 Intensity of light depends upon:
1. amplitude
2. frequency
3. wavelength
4. none of these

Solution Correct Option - **1**

Que. 45 Fill in the blank

$32\ °F =$ ____ $°C$

1. 273.15 °C
2. 0 °C
3. -273.15 °C
4. None of the above

Solution Correct Option - **2**

Que. 46 $\tan 20° + \tan 25° + \tan 20°\cdot \tan 25° = ?$
1. -1
2. 1
3. 2
4. -2

Solution Correct Option - **2**

Que. 47 Let the function f: N → N be defined by f(x) = 2x The function f is a:
1. Surjection.
2. One to One.
3. Many to One.
4. None of these.

Solution Correct Option - **2**

Que. 48 Find $x^2y_2 + xy_1$, if $y = \sin(\log x)$?
1. y
2. -y
3. xy
4. -

Solution Correct Option - **2**

Que. 49 Let $f(x) = \dfrac{1}{3x\ +\ 5}$ then f'(0) is
1. Positive
2. Negative

3. Zero
4. None of the above

Solution Correct Option - **2**

Que. 50 Find the value of $\int \csc^2 x\,(1 - \cos x)\,dx$

1. $- \cot x + \csc x + c$
2. $\cot x - \csc x + c$
3. $\cot x + \csc x + c$
4. $-\csc x - \cot x + c$

Solution   Correct Option - **1**

Que. 51 The number of three-digit numbers that can be formed with 1, 2, 3, 4 is, when repetition is allowed.

1.   64
2.   48
3.   24
4.   120

Solution   Correct Option - **1**

Que. 52 Evaluate: $\int_0^{\pi/4} \frac{\sin x}{\cos^3 x}\,dx$

1. $\frac{1}{16}$
2. $\frac{1}{2}$
3. $\frac{1}{4}$
4.   0

Solution   Correct Option - **2**

Que. 53 If M and B are two sets, such that $X \cap Y$ has 15%, M has 35% and Y has 25%, how many percentage does $X \cup Y$ have ?

1.   30%
2.   50%
3.   45%
4.   40%

Solution   Correct Option - **3**

Que. 54 Evaluate: $\int_0^{\pi/4} e^{\tan x} \sec^2 x\,dx$

1.   e
2.   e - 1
3.   2e + 1
4.   0

Solution   Correct Option - **2**

Que. 55 Find the modulus of a + ib ?

1. $\sqrt{a^2 + b^2}$
2. $\sqrt{a^2 - b^2}$

3. 1

4. None of these

Solution Correct Option - **1**

Que. 56 If $\vec{a} = 2\hat{i} + 2\hat{j} + 2\hat{k}$ and $\vec{b} = 4\hat{i} - 3\hat{j} - \lambda\hat{k}$ perpendicular, then what is the value of λ

1. 4

2. 3

3. 2

4. 1

Solution   Correct Option - **4**

Que. 57 Find the eccentricity of conic $x^2 + 2x + 2y^2 + 4y - 13 = 0$ is .

1. $\frac{1}{\sqrt{2}}$

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

3. $\frac{5}{3}$

4. $\frac{5}{4}$

Solution   Correct Option - **1**

Que. 58 What is the solution of the differential equation $x\,dy - y\,dx = 0$?

1. $xy = c$

2. $y = cx$

3. $x + y = c$

4. $x - y = c$

Solution   Correct Option - **2**

Que. 59 75° is equal to _____ radians.

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

2. $\frac{5\pi}{6}$

3. $\frac{5\pi}{12}$

4. $\frac{\pi}{3}$

Solution   Correct Option - **3**

Que. 60 If the nth term of A.P. is $2n - 1$, so find the sum of nth term.

1. $n^2 + 1$

2. $n^2 + 2$

3. n^2

4. $n^2 - 1$

Solution   Correct Option - **3**

Que. 61 What is $\lim_{x \to 0} \frac{(1 - \cos x)}{\sqrt{x+1} - 1}$ equal to?

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

Solution   Correct Option - **1**

Que. 62

If $A = \begin{bmatrix} x & 2 \\ 4 & 3 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} \frac{1}{8} & \frac{-1}{12} \\ \frac{-1}{6} & \frac{4}{9} \end{bmatrix}$, then find the value of x?

1. $\frac{28}{3}$
2. $\frac{32}{3}$
3. $\frac{34}{3}$
4.   10

Solution   Correct Option - **2**

Que. 63   Find the number of terms in $(1 + 3x + 3x^2 + x^3)^6$.

1.   18
2.   16
3.   17
4.   19

Solution   Correct Option - **4**

Que. 64   Find the value of $1 + \cos 2x - 2\cos^2 x$

1.   1
2.   0
3.   2
4.   None of these above

Solution   Correct Option - **2**

Que. 65   What is the equation to circle which touches both the axes and radius is 5?

1. $x^2 + y^2 + 10x + 10y - 25 = 0$
2. $x^2 + y^2 + 10x + 10y + 25 = 0$
3. $x^2 + y^2 + 10x + 10y + 50 = 0$
4. $x^2 + y^2 + 10x + 10y + 15 = 0$

Solution   Correct Option - **2**

Que. 66   The mean of 5, 7, 6, 11, x and 13 is 44. Find the value of the observation x.

1.   1
2.   222
3.   264
4.   6

Solution   Correct Option - **2**

Que. 67   Condition of non singular matrix is

1.   determinant is 0
2.   determinant is not 0
3.   does not have a matrix inverse
4.   None of these

Solution   Correct Option - **2**

Que. 68 Which statement true for $\frac{d(\sin^{-1}x)}{dx} = \frac{1}{\sqrt{1-x^2}}$

1. $x \in R$
2. $|x| \le 1$
3. $|x| < 1$
4. $|x| > 1$

Solution   Correct Option - **3**

Que. 69

The value of $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1+x & 1 \\ 1 & 1 & 1+y \end{vmatrix}$ is

1. $x + y$
2. $x - y$
3. xy
4. $1 + x + y$

Solution   Correct Option - **3**

Que. 70 What is the focus of the parabola $y^2 = -12x$?

1.   (3, 0)
2.   (0, 0)
3.   (-3, 0)
4.   (0, -3)

Solution   Correct Option - **3**