Section : **RRB Technicians Grade III**

**Q.1** A resistor whose value R = 10 Ω is connected to a 10-volt battery. What will be the power P and the amount of heat H generated in one minute?

**Ans**
✗ 1. $P = 100\,W, H = 6000\,J$

✗ 2. $P = 1\,W, H = 60\,J$

✗ 3. $P = 20\,W, H = 1200\,J$

✔ 4. $P = 10\,W, H = 600\,J$

**Q.2** Refer to the given number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left)  # 1 * £ 5 3 2 9 + % 8 4 6 @ $ 7 & Ω  (Right)

How many such symbols are there, each of which is immediately preceded by a number and also immediately followed by another symbol?

**Ans**
✗ 1. 5

✗ 2. 3

✗ 3. 2

✔ 4. 4

**Q.3** Decomposition of limestone to quick lime and carbon dioxide is an example of which of the following types of reaction?

**Ans**
✗ 1. Reduction reaction

✔ 2. Thermal decomposition

✗ 3. Photochemical decomposition

✗ 4. Oxidation reaction

**Q.4** Which of the following statements is/are correct about reduction?

a) Loss of oxygen

b) Gain of hydrogen

c) Gain of oxygen

d) Loss of hydrogen

**Ans**

✗ 1. Only a and d

✔ 2. Only a and b

✗ 3. Only b and c

✗ 4. Only d

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**Q.5** In a certain code language, 'PIER' is coded as '1524' and 'RILE' is coded as '5321'. What is the code for 'P' in the given code language?

**Ans**

✗ 1. 2

✔ 2. 4

✗ 3. 1

✗ 4. 5

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**Q.6** Which of the following substances experiences the least change in shape when subjected to a change in pressure?

**Ans**

✗ 1. Plasma

✗ 2. Liquid

✗ 3. Gas

✔ 4. Solid

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**Q.7** B, C, D, E, F, K and L are sitting around a circular table, facing the centre. Only two people sit between F and K when counted from the right of F. Only two people sit between K and C. Only three people sit between F and D. B sits to the immediate left of L.

Who sits third to the left of E?

**Ans**

✗ 1. B

✔ 2. L

✗ 3. F

✗ 4. K

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**Q.8** Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which conclusion(s) logically follow(s) from the given statements.

Statements:

All laptops are mobiles.

Some mobiles are televisions.

All televisions are radios.

Conclusions:

(I) Some radios are televisions.

(II) All televisions are mobiles.

**Ans**

✗ 1. Neither conclusion (I) nor (II) follows.

✗ 2. Both conclusions (I) and (II) follow.

✔ 3. Only conclusion (I) follows.

✗ 4. Only conclusion (II) follows.

**Q.9** Two numbers are in the ratio 7 : 5. If their sum is 360, then the difference between them will be:

**Ans**  ✗ 1. 80

✗ 2. 70

✗ 3. 90

✓ 4. 60

**Q.10** Which of the following statements is correct about transport in plants?

**Ans**  ✗ 1. The phloem moves water and minerals obtained from the soil.

✓ 2. Plants have low energy needs and use relatively slow transport systems.

✗ 3.
The xylem transports products of photosynthesis from the leaves where they are synthesised to other parts of the plant.

✗ 4.
In herbs and shrubs, the distances over which transport systems have to operate are very large.

**Q.11** Who among the following has been appointed as the new chief of BrahMos Aerospace (November 2024)?

**Ans**  ✗ 1. Dr. Riaz Syed

✓ 2. Dr. Jaiteerth Raghavendra Joshi

✗ 3. Dr. Vinay Agarwwal

✗ 4. Dr. Murali Nethi

**Q.12** Evaluate the given expression.

$$\left(\frac{1}{4}\right)^{(-1/2)}$$

**Ans**

✗ 1. $\dfrac{1}{16}$

✓ 2. 2

✗ 3. $\dfrac{1}{2}$

✗ 4. $\sqrt{2}$

**Q.13** 1.25% of ₹1,600 is:

**Ans**  ✗ 1. ₹5

✗ 2. ₹25

✓ 3. ₹20

✗ 4. ₹17.50

**Q.14** A solution contains 20 g of common salt in 280 g of water. What is the concentration in terms of mass by mass percentage of the solution?

**Ans**  ✗ 1. 0.66%

✗ 2. 11.1%

✗ 3. 66.6%

✓ 4. 6.66%

**Q.15** Which of the following would help a few variants of bacteria in a population living in temperate waters to survive and grow further, if the water temperature were to be increased by global warming?

**Ans**
✔ 1. Resistant to heat

✘ 2. Resistant to cold waves

✘ 3. Resistant to water

✘ 4. Resistant to wind pressure

**Q.16** Which law states that the current flowing through a conductor is directly proportional to the voltage applied across it, provided the temperature and other physical conditions remain constant?

**Ans**
✘ 1. Joule's law

✔ 2. Ohm's law

✘ 3. Faraday's law

✘ 4. Newton's law

**Q.17** Refer to the given number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 9 + Ω 6 £ * S 1 & 8 4 7 2 % 5 3 @ # (Right)

How many such numbers are there, each of which is immediately preceded by a symbol and also immediately followed by another number?

**Ans**
✘ 1. 1

✔ 2. 2

✘ 3. 3

✘ 4. 0

**Q.18** Vandita scored an overall average of 80% marks in five subjects taken together, viz. Hindi, Science, Maths, English and Sanskrit, wherein the maximum marks of each subject were 105. How many marks did Vandita score in Science if she scored 89 marks in Hindi, 92 marks in Sanskrit, 98 marks in Maths and 81 marks in English?

**Ans**
✘ 1. 70

✘ 2. 75

✔ 3. 60

✘ 4. 65

**Q.19** Which of the following pigments is present in the red blood corpuscles of human beings?

**Ans**
✘ 1. Xanthophyll

✘ 2. Chlorophyll

✔ 3. Haemoglobin

✘ 4. Melanin

**Q.20** The ratio of milk to water in 10 litres of a mixture is 3 : 2. The quantity of water in the mixture is:

**Ans**
✘ 1. 6 litres

✘ 2. 10 litres

✘ 3. 5 litres

✔ 4. 4 litres

**Q.21** The value of $\frac{9}{-16} + \frac{-5}{-12}$ is:

**Ans**

✗ 1. $\frac{4}{28}$

✗ 2. $\frac{-4}{28}$

✗ 3. $\frac{-7}{24}$

✔ 4. $\frac{-7}{48}$

**Q.22** Under 'PM Vishwakarma Yojana' benefits 2024 a loan of ₹ _____ is given at 5% interest.

**Ans**

✗ 1. 2,00,000

✗ 2. 4,00,000

✗ 3. 5,00,000

✔ 4. 3,00,000

**Q.23** If future shoot hidden in a germinating seed is called plumule, then future root of the germinating seed would be _____.

**Ans**

✗ 1. cotyledon

✗ 2. sepal

✗ 3. petal

✔ 4. radicle

**Q.24** Face cream belongs to which type of colloid form?

**Ans**

✗ 1. Solid

✗ 2. Foam

✗ 3. Gel

✔ 4. Emulsion

**Q.25** A student took iron nails and dipped them in solution 'X' for twenty minutes. After some time he noticed that the colour of the iron nails became brownish.
Identify solution 'X' in which the nail was dipped.

**Ans**

✗ 1. Iron sulphate

✔ 2. Copper sulphate

✗ 3. Lead sulphate

✗ 4. Zinc sulphate

**Q.26** Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

DBL, IEN, NHP, SKR, ?

**Ans**

✔ 1. XNT

✗ 2. YMT

✗ 3. YNT

✗ 4. SMX

**Q.27** A pair of parallel lines is intersected by a transversal such that ∠1 and ∠2 form a pair of alternate interior angles. If m∠1 = 75º, what is the measure of ∠2?

**Ans**
- ✔ 1. 75°
- ✘ 2. 105°
- ✘ 3. 65°
- ✘ 4. 15°

**Q.28** What sum will earn a simple interest of ₹1,056 in 3 years at 16% per year rate of interest?

**Ans**
- ✔ 1. ₹2,200
- ✘ 2. ₹1,600
- ✘ 3. ₹2,000
- ✘ 4. ₹1,800

**Q.29** If the mode of the following data is 6, then find the value of k.

2, 4, 6, 7, 5, 6, 10, 6, 7, 2k + 1, 9, 7, 13

**Ans**
- ✘ 1. 3
- ✘ 2. 3.5
- ✘ 3. 2
- ✔ 4. 2.5

**Q.30** According to the Statistical Appendix of the Economic Survey 2023-24, what was India's Infant Mortality Rate (IMR) in 2020?

**Ans**
- ✔ 1. 28 per 1000 live births
- ✘ 2. 30 per 1000 live births
- ✘ 3. 42 per 1000 live births
- ✘ 4. 34 per 1000 live births

**Q.31** In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is the same as that on the right side of ::?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

X : 83 :: 17 : Y

**Ans**
- ✘ 1. X = 11, Y = 119
- ✘ 2. X = 12, Y = 119
- ✘ 3. X = 11, Y = 118
- ✔ 4. X = 12, Y = 118

**Q.32** What will come in the place of '?' in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

25 + 15 − 9 ÷ 10 × 5 = ?

**Ans**
- ✘ 1. 55
- ✘ 2. 82
- ✔ 3. 28
- ✘ 4. −22

**Q.33** The mean and mode of a set of data are 58.7 and 61.1, respectively. Find the median of the data, using the empirical formula.

**Ans**
- ✔ 1. 59.5
- ✘ 2. 55.2
- ✘ 3. 54.6
- ✘ 4. 55.8

**Q.34** What kind of energy is acquired by a stretched rubber band?

**Ans**
- ✘ 1. Light energy
- ✘ 2. Kinetic energy
- ✔ 3. Potential energy
- ✘ 4. Thermal energy

**Q.35** What will be the amount after 1 year if a sum of ₹7,500 is invested at 8% compound interest per annum, compounded half-yearly?

**Ans**
- ✘ 1. ₹8,300
- ✔ 2. ₹8,112
- ✘ 3. ₹8,220
- ✘ 4. ₹8,140

**Q.36** Find the correct number of atoms for a glucose molecule.

**Ans**
- ✘ 1. 6
- ✔ 2. 24
- ✘ 3. 12
- ✘ 4. 18

**Q.37** Simplify the following expression:

$$\frac{5.32 \times 5.32 - 3.64 \times 3.64}{1.68}$$

**Ans**
- ✘ 1. 8.99
- ✔ 2. 8.96
- ✘ 3. 8.94
- ✘ 4. 8.86

**Q.38** Ginny starts from point A and drives 7 km towards the North. She takes two simultaneous left turns and drives 3 km and 4 km, respectively. She then takes a right turn and drives 2 km. She takes a final left turn and drives 3 km to reach point B. How far (shortest distance) and towards which direction should she drive to reach Point A again? (All turns are 90 degrees only unless specified.)

**Ans**
- ✘ 1. 3 km East
- ✘ 2. 3 km West
- ✘ 3. 4 km East
- ✔ 4. 5 km East

**Q.39** Manish bought an electronic gadget with a 25% discount on the MRP. He made a profit of ₹600 by selling it for ₹18,600. The marked price of the electronic gadget was:

**Ans**

✗ 1. ₹24,200

✔ 2. ₹24,000

✗ 3. ₹25,600

✗ 4. ₹22,000

**Q.40** Which of the following options should come in place of the question mark (?) in the given series to make it logically complete?

10, 18, 38, 74, 150, ?

**Ans**

✗ 1. 274

✔ 2. 298

✗ 3. 300

✗ 4. 280

**Q.41** In a situation where we are injured and start bleeding, the bleeding could lead to a loss of pressure that could reduce the efficiency of the pumping system. To avoid this, which cells mainly help to clot blood at the injury point?

**Ans**

✔ 1. Blood platelets

✗ 2. White blood corpuscles

✗ 3. Lymph

✗ 4. Red blood corpuscles

**Q.42** The force exerted by an object perpendicular to the surface is called:

**Ans**

✗ 1. pressure

✔ 2. thrust

✗ 3. weight

✗ 4. buoyancy

**Q.43** What similarities do plastids share with mitochondria?

**Ans**

✗ 1. Both contain chlorophyll.

✔ 2. Both contain their own DNA and ribosomes.

✗ 3. Both produce ATPs.

✗ 4. Both are present only in plant cells.

**Q.44** In its October 2024 meeting, the RBI Monetary Policy Meeting kept the _____ unchanged at 6.5%.

**Ans**

✗ 1. cash reserve ratio

✗ 2. bank rate

✗ 3. statutory liquidity ratio

✔ 4. repo rate

**Q.45** Radhika's teacher is 60 years old. He is 20 years older than twice Radhika's age. Radhika's age is:

**Ans** 
- ✗ 1. 25 years
- ✗ 2. 15 years
- ✔ 3. 20 years
- ✗ 4. 30 years

**Q.46** What is the value of the radius of the earth?

**Ans**
- ✗ 1. 7400 km
- ✔ 2. 6400 km
- ✗ 3. 8400 km
- ✗ 4. 5400 km

**Q.47** The oesophagus and the lining of the mouth are also covered with:

**Ans**
- ✗ 1. cuboidal epithelium
- ✔ 2. squamous epithelium
- ✗ 3. ciliated columnar epithelium
- ✗ 4. glandular epithelium

**Q.48** Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

**Ans**
- ✗ 1. WZC
- ✗ 2. NQT
- ✔ 3. TWY
- ✗ 4. YBE

**Q.49** The value of

$(1 + \cot^2 \theta)(1 + \cos\theta)(1 - \cos\theta) - (1 - \sin\theta)(1 + \sin\theta)(1 + \tan^2 \theta)$ is: ( $\theta$ lies in first quadrant)

**Ans**
- ✔ 1. 0
- ✗ 2. 1
- ✗ 3. 4
- ✗ 4. 2

**Q.50** Solid $CO_2$ gets converted directly into gaseous state on decrease of pressure to:

**Ans**
- ✔ 1. 1 atmosphere
- ✗ 2. 5 atmosphere
- ✗ 3. 20 atmosphere
- ✗ 4. 10 atmosphere

**Q.51** Which of the following is INCORRECTLY matched related to the excretory system of humans?

**Ans**
✔ 1. Urethra – a pair

✘ 2. Urinary bladder – unpaired

✘ 3. Ureter – a pair

✘ 4. Kidney – a pair

**Q.52** In a certain code system, 'sparkling stars twinkle' is coded as 'lajv epvz apxv', and 'stars twinkle brightly' is coded as 'epvz rkpx apxv'. What is the code for 'brightly' in the given code language?

**Ans**
✘ 1. epvz

✘ 2. lajv

✘ 3. apxv

✔ 4. rkpx

**Q.53** An electric bulb is connected to a 200 V generator. The current drawn by the bulb is 0.1 A. What is the power of the bulb?

**Ans**
✘ 1. 10 W

✔ 2. 20 W

✘ 3. 2 W

✘ 4. 200 W

**Q.54** Which of the following changes is NOT specific to teenage?

**Ans**
✘ 1. Thinner hair on legs and arms

✔ 2. Increase in height

✘ 3. Thick hair in armpits

✘ 4. Increase in breast size

**Q.55** Which gas is given out when metals react with dilute hydrochloric acid?

**Ans**
✘ 1. Chlorine

✘ 2. Nitrogen

✘ 3. Oxygen

✔ 4. Hydrogen

**Q.56** What is the overall Sustainable Development Goal (SDG) score for India for the year 2023-24 as reported by NITI Aayog?

**Ans**
✔ 1. 71

✘ 2. 75

✘ 3. 65

✘ 4. 80

**Q.57** A constant force $F$ acts on a box of mass 10 kg for a duration of 2 s. It increases the object's velocity from 6 m/s to 10 m/s. The magnitude of the applied force $F$ is:

**Ans**
✘ 1. 25 N

✘ 2. 50 N

✔ 3. 20 N

✘ 4. 40 N

**Q.58** Four sandstone replicas of the iconic Konark wheels from the Konark Temple have been installed at (the) _____.

**Ans**
✗ 1. Red Fort

✗ 2. India Gate

✗ 3. Qutub Minar

✔ 4. Rashtrapati Bhavan's Cultural Centre and Amrit Udyan

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**Q.59** Given below is a statement followed by two possible reasons numbered I and II. Read the statement carefully and decide which of the two explains the event/observation/information given in the statement.

Statement - Even though Town B has a rich history and many ancient landmarks, it is not a popular tourist destination.

I. The town has poor public transportation and limited accommodation options.

II. Town B is located near a popular beach destination.

**Ans**
✗ 1. Both I and II are possible reasons

✗ 2. Only II is a possible reason

✔ 3. Only I is a possible reason

✗ 4. Neither I nor II is a possible reason

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**Q.60** Which statement is correct for unsaturated hydrocarbons?

**Ans**
✗ 1. Methane, ethane and butane are unsaturated hydrocarbons.

✗ 2. Alkane, alkenes and alkynes are unsaturated hydrocarbons.

✔ 3. Alkenes and alkynes are unsaturated hydrocarbons.

✗ 4. Cyclo pentane and hexane are unsaturated hydrocarbons.

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**Q.61** The Readjustment of Representation of Scheduled Tribes in Assembly Constituencies of the State of Goa Bill, 2024, was introduced in the Lok Sabha on _____.

**Ans**
✗ 1. 15 September 2024

✗ 2. 5 October 2024

✗ 3. 8 August 2024

✔ 4. 5 August 2024

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**Q.62** Which hormone helps in development of the female sex organs and regulates the menstrual cycle?

**Ans**
✗ 1. Adrenaline

✗ 2. Thyroxin

✔ 3. Oestrogen

✗ 4. Testosterone

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**Q.63** Simplify the given expression.

$20 + \{10 - 5 + (7 - 3)\}$

**Ans**
✗ 1. 27

✗ 2. 28

✗ 3. 26

✔ 4. 29

**Q.64** Which metals produce hydrogen gas when treated with very dilute nitric acid?

**Ans**
- ✔ 1. Magnesium (Mg) and manganese (Mn)
- ✘ 2. Copper (Cu) and cobalt (Co)
- ✘ 3. Manganese (Mn) and cobalt (Co)
- ✘ 4. Magnesium (Mg) and copper (Cu)

**Q.65** A cistern has two taps attached to it. Tap B can empty the cistern in 45 minutes. But Tap A can fill the cistern in just 30 minutes. Rohit started both taps unknowingly but realised his mistake after 30 minutes. He immediately closed Tap B. Now after this, in how much time will the cistern be filled?

**Ans**
- ✘ 1. 15 min
- ✔ 2. 20 min
- ✘ 3. 30 min
- ✘ 4. 45 min

**Q.66** What determines the colour of scattered light in the Tyndall effect?

**Ans**
- ✘ 1. The angle of refraction of the emerging light.
- ✘ 2. The distance between the source of light and the scattering particles.
- ✔ 3. The size of the scattering particles.
- ✘ 4. The angle of incidence of the incoming light.

**Q.67** Vaibhav ranked 7th from the top and 32nd from the bottom in his class. How many students are there in the class?

**Ans**
- ✘ 1. 36
- ✔ 2. 38
- ✘ 3. 39
- ✘ 4. 37

**Q.68** Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

JTQ, HRS, FPU, DNW, ?

**Ans**
- ✘ 1. BMZ
- ✘ 2. ALZ
- ✔ 3. BLY
- ✘ 4. ZAL

**Q.69** Rays of the Sun converge at a point of 30 cm in front of a concave mirror. Where should the object be placed so that the size of the image is equal to the size of the object?

**Ans**
- ✔ 1. 60 cm in front of the mirror
- ✘ 2. Between 30 and 60 cm in front of the mirror
- ✘ 3. More than 30 cm in front of the mirror
- ✘ 4. 30 cm in front of the mirror

**Q.70** In an electric bulb, the electrical energy is converted into _____ energy.

**Ans**
- ✘ 1. Sound
- ✘ 2. Wind
- ✘ 3. Potential
- ✔ 4. Light

**Q.71** The HCF of 2410 and 2700 is:

**Ans**
✗ 1. 5
✗ 2. 1
✔ 3. 10
✗ 4. 2

**Q.72** When we eat something we like, our mouth waters by a fluid called saliva. In this situation, which enzymes break starch into simple sugar?

**Ans**
✔ 1. Amylase enzymes
✗ 2. Pancreatic enzymes
✗ 3. Trypsin enzymes
✗ 4. Pepsin enzymes

**Q.73** Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which conclusion(s) logically follow(s) from the given statements.

Statements:

Some shirts are pants.

Some pants are coats.

Conclusions:

(I) Some pants are not shirts.

(II) Some shirts are coats.

**Ans**
✗ 1. Both conclusions I and II follow
✗ 2. Only conclusion II follows
✔ 3. Neither conclusion I nor II follows
✗ 4. Only conclusion I follows

**Q.74** Ali, Bob, Carol, Dave, Elma and Frank are sitting around a circular table facing the centre. Ali sits second to the left of Bob. Carol sits third to the right of Bob. Dave sits to the immediate left of Carol. Elma sits to the immediate left of Bob.

How many people sit between Elma and Frank when counted from the right of Elma ?

**Ans**
✗ 1. Two
✗ 2. Zero
✔ 3. One
✗ 4. Three

**Q.75** Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

PU-RN-ST

SX-UQ-VW

**Ans**
✗ 1. HM-JF-KN
✗ 2. QV-SO-TW
✗ 3. EJ-GC-HK
✔ 4. KP-MI-NO

**Q.76** Select the INCORRECT statement related to tropism.

Ans ✔ 1. Phototropism – movement towards water

✘ 2. Chemotropism – movement towards chemical

✘ 3. Hydrotropism – movement towards water

✘ 4. Geotropism – in response to the pull of earth or gravity

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**Q.77** Which of the following sports personalities received the Padma Shri in 2024 for their contribution to sports?

Ans ✘ 1. Manika Batra

✘ 2. PV Sindhu

✔ 3. Joshna Chinappa

✘ 4. Vinesh Phogat

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**Q.78** Which of the following is INCORRECT about parenchyma?

Ans ✔ 1.
It allows the bending of various parts of a plant like tendrils and stems of climbers without breaking.

✘ 2. The cells of parenchyma are living cells and are usually loosely arranged.

✘ 3. It consists of relatively unspecialised cells with thin cell walls.

✘ 4. In aquatic plants, large air cavities are present in parenchyma to help them float.

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**Q.79** Refer to the given series and answer the question that follows (all numbers are single-digit numbers only, and all counting is to be done from left to right).

(Left)  5  1  6  6  2  4  9  3  5  3  7  1  8  5  2  7  8  1  8  4  5  1  5  7  6  9  2  9  (Right)

How many such even digits are there, each of which is immediately preceded by an odd digit and also immediately followed by an odd digit?

Ans ✘ 1. 2

✘ 2. 4

✘ 3. 3

✔ 4. 5

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**Q.80** Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

Ans ✔ 1. KUP

✘ 2. UZE

✘ 3. BGL

✘ 4. PUZ

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**Q.81** What is the initial speed of any object if it is dropped from a height of 50 m?

Ans ✘ 1. 20 m/s

✔ 2. 0

✘ 3. 25 m/s

✘ 4. 50 m/s

**Q.82** If A means +, B means −, C means ×, D means ÷, then what will come in place of the question mark (?) in the following equation?

14 D 2 A 10 B 3 C 5 = ?

**Ans**
&#10007; 1. 1

&#10007; 2. 3

&#10004; 3. 2

&#10007; 4. 0

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**Q.83** A spherical mirror diverges a beam of light, which is incident on it. Which of the following statement(s) about the mirror is/are true?

i)The mirror used is convex.

ii)The mirror has positive focal length.

iii) The image formed by this mirror can be seen on a screen.

**Ans**
&#10007; 1. Both (ii) and (iii)

&#10007; 2. Only (i)

&#10004; 3. Both (i) and (ii)

&#10007; 4. Only(iii)

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**Q.84** _____ bagged Santosh Trophy title by beating Goa by 1-0 in the final of the 77$^{th}$ National Football Championship at the Golden Jubilee Stadium, on 9 March 2024.

**Ans**
&#10004; 1. Services

&#10007; 2. West Bengal

&#10007; 3. Kerala

&#10007; 4. Mizoram

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**Q.85** In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is the same as that on the right side of ::?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

X : 30 :: 12 : Y

**Ans**
&#10007; 1. $X = 9, Y = 36$

&#10007; 2. $X = 10, Y = 42$

&#10007; 3. $X = 10, Y = 39$

&#10004; 4. $X = 9, Y = 39$

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**Q.86** Who has taken over as the 26$^{th}$ Director General of the Indian Coast Guard?

**Ans**
&#10007; 1. Rajendra Singh

&#10007; 2. KN Satyanand

&#10004; 3. Paramesh Sivamani

&#10007; 4. Radhakrishnan S

**Q.87** In a certain code language,

'A + B' means 'A is the sister of B',

'A – B' means 'A is the husband of B',

'A x B' means 'A is the mother of B'

and 'A ÷ B' means 'A is the son of B'.

How is T related to W if 'T ÷ U x V + W – X'?

**Ans**
✔ 1. Brother
✘ 2. Father
✘ 3. Father's father
✘ 4. Father's brother

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**Q.88** The sum of the two numbers is 58 and one of them exceeds the other by 18. Find the greater number.
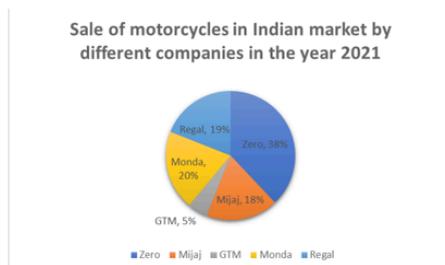
**Ans**
✘ 1. 30
✘ 2. 36
✘ 3. 40
✔ 4. 38

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**Q.89** How many numbers between 11 and 90 are divisible by 7?

**Ans**
✘ 1. 12
✘ 2. 10
✘ 3. 13
✔ 4. 11

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**Q.90** Study the following pie-chart and answer the question that follows.

The following pie-chart shows the breakup of the percentage sale of motorcycles by different companies in India the year 2021.



Sale of motorcycles in Indian market by different companies in the year 2021

If the total motorcycles sold in India in the year 2021 was 25,00,000, then what was the number of motorcycles sold by GTM in India in the year 2021?

**Ans**
✘ 1. 2,00,000
✘ 2. 1,75,000
✔ 3. 1,25,000
✘ 4. 1,50,000

**Q.91** Which of the following is absent in cells of meristematic tissue?

**Ans**
✘ 1. Cytoplasm
✘ 2. Cell walls
✔ 3. Vacuoles
✘ 4. Nuclei

**Q.92** Mr. Saxena bought some pens at the rate of ₹150 per dozen. He sold them for ₹15 each. What is his profit/loss percentage?

**Ans**
✔ 1. 20% profit
✘ 2. 18.5% profit
✘ 3. 28% loss
✘ 4. 37.5% loss

**Q.93** Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

EA-GC-IK

HD-JF-LN

**Ans**
✔ 1. KG-MI-OQ
✘ 2. LG-NI-OQ
✘ 3. LG-MI-OR
✘ 4. KG-NI-OR

**Q.94** The area of a square is 4096 sq cm. Find the ratio of the breadth and the length of a rectangle whose length is twice the side of the square and breadth is 24 cm less than the side of the square.

**Ans**
✔ 1. 5 : 16
✘ 2. 18 : 5
✘ 3. 7 : 16
✘ 4. 5 : 32

**Q.95** A policeman and a thief start from the same place and walk at the rate of 5 km/h and 5.5 km/h, respectively. How much time will they take to be 9.5 km apart, if they walk in the same direction?

**Ans**
✘ 1. 17 hrs
✘ 2. 4 hrs 15 min
✘ 3. 2 hrs 55 min
✔ 4. 19 hrs

**Q.96** Which of the following statements is/are correct?

(i) Suspension is a heterogeneous mixture.

(ii) The particles of a suspension scatter a beam of light passing through it and make its path visible.

(iii) The solute particles settle down when a suspension is left undisturbed, that is, a suspension is unstable.

**Ans**
✔ 1. i, ii and iii
✘ 2. Only i and ii
✘ 3. Only i
✘ 4. Only ii and iii

**Q.97** Pipes A and B can fill a tank for 8 hours and 10 hours, respectively, and pipe C can empty the full tank in 12 hours. All three pipes are opened together, but pipe A is closed after 4 hours. In how many hours will the remaining part of tank be filled?

**Ans**
- ✗ 1. 30
- ✗ 2. 22
- ✗ 3. 24
- ✓ 4. 26

**Q.98** The area (in cm$^2$) of an equilateral triangle whose height is 6 cm, is:

**Ans**
- ✗ 1. $\dfrac{9\sqrt{3}}{4}$
- ✗ 2. $6\sqrt{3}$
- ✗ 3. $\dfrac{3\sqrt{3}}{2}$
- ✓ 4. $12\sqrt{3}$

**Q.99** Which of the following statements is NOT correct?

**Ans**
- ✗ 1. The speed of light in the given medium is different for different colours,
- ✗ 2. The incident ray, refracted ray and normal to the surface at incidence lie in the same plane.
- ✓ 3. The angle of incidence and refraction are equal.
- ✗ 4. The speed of light in different media is different.

**Q.100** Which of the following is the correct formula for ethyne?

**Ans**
- ✗ 1. $C_2H_4$
- ✗ 2. $C_2H_6$
- ✓ 3. $C_2H_2$
- ✗ 4. $CH_4$

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