
SECTION A

GENERAL SCIENCE (Question No 1 to 25)

1 Autonomic nervous system control

[A] Reflex action

[B] Sense organs

[C] Internal organs

[D] Skeletal muscle

2 The function of the Glomerulus and Bowman's capsule of the nephron is to

[A] Reabsorb water into the blood

[B] Eliminate ammonia from the body

[C] Reabsorb salts and amino acids

[D] Filter the blood and capture the filtrate

3 A student was carrying out an experiment. She had yeast cell suspension in two tubes X and Y. The tube X had been stored in the fridge at 4°C while the suspension in tube Y had been boiled for 10 minutes. Both were brought to room temperature. Sucrose was added to both the tubes and after keeping them at 37°C for 20 minutes, a reagent to detect the product formed by change in colour was added. What will be the expected result?

[A] There will be colour change in both X and Y

[B] There will be colour change in X but not in Y

[C] There will be no colour change in either X or Y

[D] There will be colour change in Y but not in X

4 Which of the following is embedded in the uterine wall?

[A] Zygote

[B] Embryo's head

[C] Placenta

[D] Eggs

5 The genotype of the height of an organism is written as **Tt**. What conclusion may be drawn?

[A] The allele for height has at least two different genes.

[B] There are at least two different alleles for the gene for height

[C] There are two different genes for height, each having a single allele.

[D] There is one allele for height with two different forms.

6 Growth of pollen tube in the style towards the ovule in the plants is an example of

- [A] Chemotropism [B] Hydrotropism
[C] Geotropism [D] Phototropism
-

7 Genetic diversity in agricultural crops is threatened by

- [A] Intensive use of fertilizers
[B] Introduction of high yielding varieties
[C] Extensive intercropping
[D] Imbalance in biological diversity
-

8 **Read the following statement of assertion and statement of reason carefully and select correct option.**

Assertion: In the daytime, CO₂ generated during respiration is used up for photosynthesis.

Reason: There is no CO₂ released during day

- [A] Assertion is true and Reason is false
[B] Assertion is false and Reason is true
[C] Both Assertion and Reason are true and Reason is the correct explanation of Assertion
[D] Both Assertion and Reason are true and Reason is not the correct explanation of Assertion
-

9 The reaction in which two compounds exchange their ions to form two new compounds is

- [A] A displacement reaction [B] A decomposition reaction
[C] An isomerization reaction [D] A double displacement reaction
-

10 An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change?

- [A] Baking powder [B] Hydrochloric acid
[C] Lime [D] Ammonium hydroxide solution
-

11 Alloys are homogeneous mixture of a metal with a metal or non-metal. Which among the following alloys contain non-metal as one of its constituents?

- [A] Brass [B] Bronze
[C] Amalgam [D] Steel
-

12 **Read the following statement of assertion and statement of reason carefully and select correct option.**

Assertion: Zinc oxide is amphoteric in nature.

Reason: Zinc oxide reacts with both acids and bases

- [A] Assertion is true and Reason is false
[B] Assertion is false and Reason is true
[C] Both Assertion and Reason are true and Reason is the correct explanation of Assertion
[D] Both Assertion and Reason are true and Reason is not the correct explanation of Assertion

13 The correct statement concerning the number of bonds present in the isomers of the hydrocarbon C_5H_{12} is that

- [A] The total number of bonds is 16 [B] The total number of bonds is 17
[C] The total number of bonds is 32 [D] The total number of bonds depends on the isomers

14 Match the list in I with the list II and select the correct option.

List I (Position of metal in the activity series)		List II (Related reduction process)	
I	The bottom of the series	P	Electrolysis
II	The top of the series	Q	Reduction by heat alone
III	The lower region of the series	R	Found in native state
IV	The middle of the series	S	Reduction using carbon or other reducing agent

	I	II	III	IV
[A]	Q	R	S	P
[B]	Q	P	S	R
[C]	R	P	Q	S
[D]	R	P	S	Q

15 In which of the following solutions iron gets oxidized?

- I. Silver nitrate* *II. Zinc sulphate* *III. Magnesium sulphate*
IV. Copper sulphate

[A] I & IV

[B] I & III

[C] II & III

[D] I & IV

16 *Read the following statement of assertion and statement of reason carefully and select correct option.*

Assertion: Force experienced by moving charge will be maximum if direction of velocity of charge is perpendicular to applied magnetic field

Reason: Force on moving charge is independent of direction of applied magnetic field

[A] Assertion is true and Reason is false

[B] Assertion is false and Reason is true

[C] Both Assertion and Reason are true and Reason is the correct explanation of Assertion

[D] Both Assertion and Reason are true and Reason is not the correct explanation of Assertion

17 Refractive index of diamond with respect to glass is 1.6. If the absolute refractive index of glass is 1.5, then the absolute refractive index of diamond is

[A] 1.4

[B] 2.4

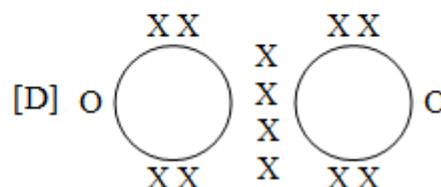
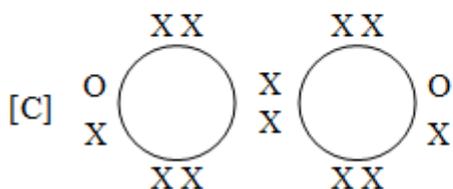
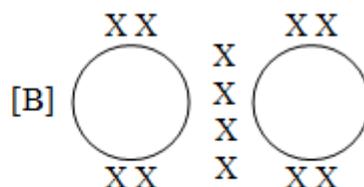
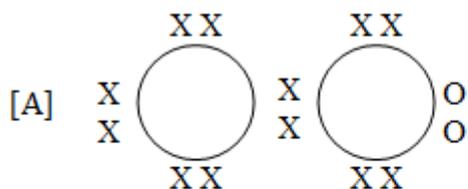
[C] 3.4

[D] 4.4

18 Which of the following Lewis dot structures best describes the structures of peroxide ion of sodium peroxide?

X- electron from oxygen

O-electron from sodium



19 The mass number of four different elements A, B, C and D are 2, 35, 135, and 239 respectively. Which of them would provide the most suitable for nuclear fusion?

[A] A

[B] B

[C] C

[D] D

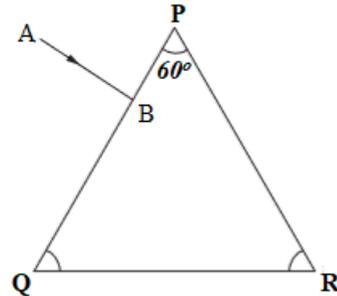
20 In the figure given below, a light ray AB is incident normally on one face PQ of an equilateral glass prism. What is the angle of incidence at face PR?

[A] 60°

[B] 30°

[C] 90°

[D] 45°



21 Two plane mirrors are set at right angle and a flower is placed in between the mirrors. The number of images of the flower which will be seen is

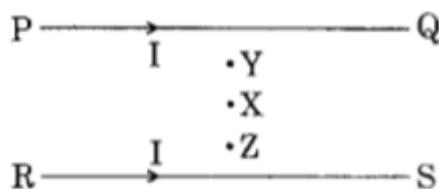
[A] One

[B] Two

[C] Three

[D] Four

22 Two fixed long parallel wires PQ and RS both carry current I in the same direction, as shown. The magnetic field at point X lying in the plane of the wires midway between them is zero, i.e., X is a magnetic neutral point.



Now if the current in the wire PQ is doubled to $2I$, keeping the current in RS the same, then

[A] The magnetic neutral point moves towards the point Z

[B] The magnetic neutral point moves towards the point Y

[C] The magnetic neutral point remains at X

[D] There is no magnetic neutral point between the wires.

23 A coin appears to be raised when placed at the bottom of a vessel with 50ml of water ($\mu = 4/3$). The vessel is filled upto 100ml mark with another liquid ($\mu = 5/4$). How will the apparent depth change?

[A] It will increase

[B] It will decrease

[C] It will become zero

[D] It will be equal to the real depth

24 A 220V, 100W bulb is connected to a 110V source. The power consumed by the bulb is

[A] 10W

[B] 20W

[C] 25 W

[D] 50W

25 When we come out of a dark room, the following changes occur in our eyes.

P: *The pupil becomes smaller*

Q: *The iris relaxes completely*

R: *The ciliary muscles contract*

[A] P and Q only

[B] Q and R only

[C] P and R only

[D] P, Q and R

MATHEMATICS (Question No 26 to 40)

26 If n is an even natural number, then the largest natural number by which $n(n + 1)(n + 2)$ is divisible is

[A] 6

[B] 8

[C] 24

[D] 42

27 In an AP, if $a = 3.5$, $d = 0$ and $n = 101$, then a_n will be

[A] 0

[B] 3.5

[C] 103.5

[D] 104.5

28 A circular field has a circumference of 360km. Three cyclists start together and can cycle 60km, 72km and 90km a day around the field. After how many days will they meet again at the starting point?

[A] 40 days

[B] 72 days

[C] 15 days

[D] 60 days

29 If α, β are the zeroes of polynomial $f(x) = x^2 - p(x - 1) + c$, then $(\alpha+1)(\beta+1) =$

[A] $c - 1$

[B] $c + 2p + 1$

[C] c

[D] $1 + c$

30 A chemist has one solution containing 50% acid and a second one containing 25% acid. How much of each should be used to make 10 liters of a 40% solution?

[A] 10 liters

[B] 12 liters

[C] 6 liters

[D] 4 liters

31 If $\sin\theta = \frac{3}{4}$ then $\sqrt{\frac{\operatorname{cosec}^2\theta - \cot^2\theta}{\sec^2\theta - 1}} =$

[A] $\frac{\sqrt{7}}{5}$

[B] $\frac{3}{5}$

[C] $\frac{\sqrt{7}}{3}$

[D] $\frac{\sqrt{7}}{4}$

32 From the top of a building 96m high, the angles of depression of two vehicles on a road at the same end and in the same line with the foot of the building and on the same side of it are $\tan x = \frac{3}{4}$ and $\tan y = \frac{1}{3}$. Find the distance between the vehicles.

[A] 200m

[B] 180m

[C] 160m

[D] 150m

33 The interior angles of a polygon are in AP. The smallest angle is 100° and the common difference is 10° . Find the number of sides.

[A] 6

[B] 14

[C] 16

[D] 8

34 Consider the following distribution.

Marks obtained	≥ 0	≥ 10	≥ 20	≥ 30	≥ 40	≥ 50
No: of students	68	53	50	45	38	25

Find the number of students having marks more than 29 but less than 40

[A] 15

[B] 7

[C] 10

[D] 5

35 To construct a triangle similar to a given $\triangle ABC$ with its sides $\frac{3}{7}$ of the corresponding sides of $\triangle ABC$, first draw a ray BX such that $\angle CBX$ is an acute angle and X lies on the opposite side of A with respect to BC. Then locate points B₁, B₂, B₃, ... on BX at equal distances and next step is to join

[A] B₁₀ to C

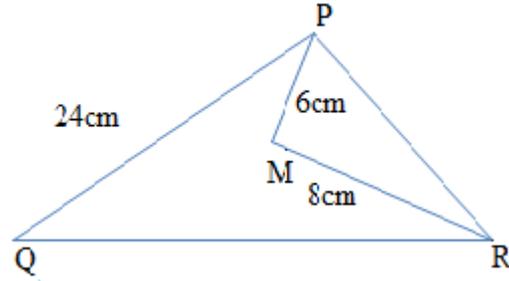
[B] B₃ to C

[C] B₇ to C

[D] B₄ to C

- 36 In given figure, $PQ = 24\text{cm}$, $PM = 6\text{cm}$, $MR = 8\text{cm}$ and $\angle QPR = \angle PMR = 90^\circ$. Find the area of ΔPQR

- [A] 60cm^2
[B] 100cm^2
[C] 120m^2
[D] 240cm^2



- 37 Present ages of a father and his son are in the ratio 7:3, and they will be in the ratio 2:1 after 10 years. The present age of father is

- [A] 42 [B] 56
[C] 70 [D] 77

- 38 *Read the following statement of assertion and statement of reason carefully and select correct option.*

Assertion: The equation $9x^2 - 3kx + 4 = 0$ has equal roots for $k \pm 4$.

Reason: If discriminant D of the quadratic equation is equal to zero, then the roots of equation are real and equal.

- [A] Assertion is true and Reason is false
[B] Assertion is false and Reason is true
[C] Both Assertion and Reason are true and Reason is the correct explanation of Assertion
[D] Both Assertion and Reason are true and Reason is not the correct explanation of Assertion

- 39 The areas of the semi-circle drawn on the hypotenuse of a right angled triangle is equal to

- [A] Sum of the areas of the semi-circles drawn on the other two sides of the triangle
[B] Difference of the areas of the semi-circles drawn on the other two sides of the triangle
[C] Product of the areas of semi-circles drawn on the other two sides of the triangle.
[D] None of these

- 40 Two dice are numbered 1, 2, 3, 4, 5, 6 and 1, 1, 2, 2, 3, 3 respectively. They are thrown and the sum of the numbers on them is noted. The probability of getting even sum is

- [A] $\frac{1}{9}$ [B] $\frac{1}{18}$
[C] $\frac{1}{2}$ [D] $\frac{1}{4}$

SECTION B

41 What does a disk fragmentor do?

- [A] It is a utility program that facilitate compression of files so that they occupy less storage space
 - [B] It is a utility program that minimizes the time taken by hard disk optical reader to read up 'split' files. It does so by rearranging the files and free space on your computer so that files are stored in contiguous units.
 - [C] It is a utility program that facilitates the backing up of the disk
 - [D] It is a utility program used for creating and editing text file.
-

42 Find the odd one out?

- [A] Windows XP
 - [B] Word 2010
 - [C] Mac OS
 - [D] Unix
-

43 Bandwidth refers to

- [A] The cost of the cable required to implement a WAN
 - [B] The cost of the cable required to implement a LAN
 - [C] The amount of information a peer-to-peer network can store
 - [D] The amount of information a communications medium can transfer in a given amount of time
-

44 What is the correct option of MS-DOS batch file extension

- [A] .bat
 - [B] .dos
 - [C] .bd
 - [D] .bdos
-

45 Which sign is used to specify a cell range in excel?

- [A] / (slash)
 - [B] : (colon)
 - [C] * (asterisk)
 - [D] _ (hyphen)
-

46 Who was the first president of Indian National Congress?

- [A] WC Banarjee
- [B] A O Hume
- [C] C Rajagopalachari
- [D] Gopalakrishna Gokale

47 **Assertion A:** Britain granted independence in India in 1947.

Reason R: Britain was weakened in the World War II.

Choose the correct answer from the given below

- [A] Both A and R are true and R is the one of the explanation of A
- [B] Both A and R are true and R is not the explanation of A
- [C] A is true is true but R is false
- [D] A is false and R is true

48 Select the correct sequence of the sea port from north to south

- [A] Vishakhapatnam, Paradip, Chennai, Tuticorin
- [B] Paradip, Vishakhapatnam, Chennai, Tuticoin
- [C] Vishakhapatnam, Paradip, Tuticorin, Chennai
- [D] Chennai, Tuticorin, Paradip, Vishakhapatnam

49 Alice starts walking from point A in south direction and walks 10m, then takes a right turn and walks 8m to reach at point B. From point B he takes two consecutive left turn and walks 5m and 16m respectively and reach at point C. What is the direction of point C with respect to point A?

- [A] North
- [B] East
- [C] North-west
- [D] South-east

50 The following map shows one of the great historical expeditions conducted by:

- [A] Vasco da Gama
- [B] Christopher Columbus
- [C] Ronald Amundsen
- [D] Bartolommeo Dias



51 Identify this 'National Highway'

- [A] NH 1
- [B] NH 47
- [C] NH7
- [D] NH 2

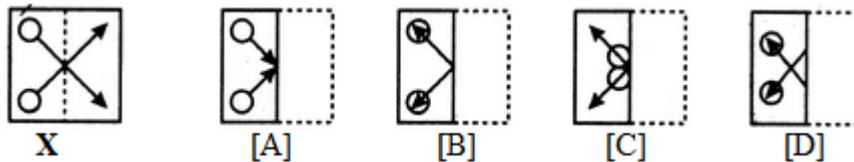


52 Article 17 of the Indian constitution:

- [A] Abolishes untouchability
- [B] Protects Individual freedom
- [C] Grants Right to equality
- [D] Grants Right to freedom

- 53 Which one of the following is a not a difference between regional parties and National parties.
- [A] National parties are country wide parties and regional parties are popular within a region or states
- [B] There are six national parties and many regional parties in India
- [C] Both national and regional parties have unique symbol which they can use all over the country
- [D] They are registered with Election commission

- 54 Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



- 55 Answer the following question based on this data

A + B means A is brother of B

A - B means A is father of B

A * B means A is uncle of B

A / B means A is sister of B

From the given expression M + N - T * S which of the following is true?

- [A] M is the grandfather of T [B] M is the uncle of S
- [C] M is the sister of S [D] M is the grandfather of S

- 56 In the question, there are four groups of letters. One of these groups is different from the other groups.

Find out the different group.

- [A] ZWT [B] FCA
- [C] SPM [D] HEB

- 57 **3S programme-Smart Safety Surveillance** is an initiative of which organization?

- [A] World Bank [B] UNGA
- [C] UNICEF [D] WHO

- 58 The speaker of the Lok Sabha appoints who among the following?

- [A] Leader of Opposition
- [B] Prime minister
- [C] Two members of the Anglo-Indian community
- [D] Deputy Speaker of the Lok Sabha

59 The sensitive index of National Stock Exchange of India is popularly known as....

- [A] SENSEX [B] CRIS
[C] CSE [D] NIFTY
-

60 Answer the following question based on the following conditions

T, Q, R, W and E are sitting in a straight line.

T sits between Q and R.

W do not sit in the middle and is the immediate left of E.

Q and E occupy the extreme positions.

Find the position of W with reference to R.

- [A] Immediate Left [B] Second Left
[C] Third Left [D] Immediate Right
-

Direction for Question No. 61 to 63: in each of the following questions select the related letters/words/ numbers from the given alternatives:

61 BDAC: FHEG :: NPMO : ?

- [A] TRQS [B] RTQS
[C] RQTS [D] QTRS

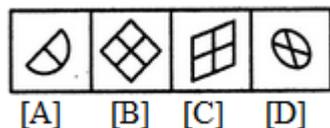
62 JEWELLERY: GOLD :: FURNITURE : ?

- [A] PAINT [B] TABLE
[C] TREE [D] WOOD

63 49 : 64 :: 144 : ?

- [A] 256 [B] 186
[C] 169 [D] 121
-

64 Choose the figure which is different from the rest.



65 Find the odd one out

- [A] Ballot [B] Manifesto
[C] Election [D] Vote
-

66 Replace the question mark

CD, GHI, ?, UVWXY

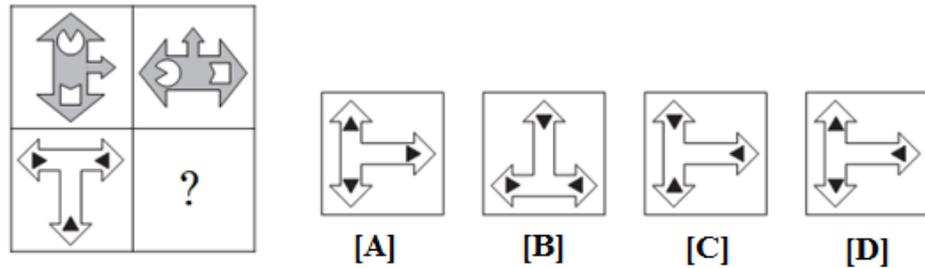
[A] LMNO

[B] MNO

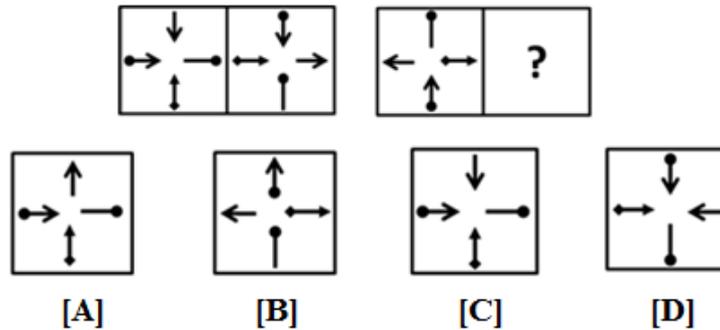
[C] MNOP

[D] NOPQ

67 Replace the question mark?



68 Understand the first pair of figure and find the suitable diagram for the second figure.



69 Study the given information and select the most appropriate term for 'save more money'

'time and money' is coded as 'tis nim jes'

'manage money judiciously' is coded as 'lop xer nim'

'save more time' is coded as 'jes kib dob'

'save enough judiciously' is coded as 'xer kib hix'.

[A] nim hix kib

[B] jes nim dob

[C] nim kib dob

[D] There is not enough information for figuring out code of 'more'

70 On Thursday, Officer Rana worked the 3 p.m. to 11 p.m. shift. At 10:55 p.m. he was called to the scene of an accident where he remained until 1:30 a.m. How long past his regular shift did Officer Rana work?

[A] 55 minutes

[B] 2 hours, 35 minutes

[C] 2 hours

[D] 2 hours, 30 minutes

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK