

SECTION A

GENERAL SCIENCE (Question No 1 to 25)

- 1 **Lichens** are symbiotic association of *algae* and *fungi*. Which of the following statements is correct in respect to lichens?
- [A] Fungus supplies water and minerals to cells of algae
 - [B] Algae supplies food to the fungus
 - [C] Fungus supplies water, minerals and food to algae and algae do not supply anything
 - [D] Both (A) & (B) are correct

- 2 Which one of the following is incorrect about liver?
- [A] It stores proteins and fats
 - [B] It purifies blood
 - [C] It removes and stores iron from dead red blood cells
 - [D] It helps in digestion by producing bile

- 3 In our body glucose breaks down to carbon dioxide and water. Energy is released during this process. It can be represented by the following equation



Which of the following process represented by the above equation?

- [A] Photosynthesis
 - [B] Combustion
 - [C] Respiration
 - [D] Breathing
- 4 **Read the following statement of assertion and statement of reason carefully and select correct option.**

Assertion: When our muscle cells respire anaerobically cramps occur.

Reason: The accumulation of lactic acid causes cramps

- [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

5 Study the following information given below. Which of the following are the functions of red blood cells?

P: Transports oxygen as oxyhaemoglobin

Q: Engulfs and ingests microorganisms

R: Transports carbon dioxide as carbamino haemoglobin

S: Produces antibodies

[A] P & R only

[B] Q & S only

[C] P, Q & R only

[D] P, Q, R & S

6 When you add yeast to dough, it rises because

[A] Yeast cells reproduce by budding

[B] Yeast cells form colonies

[C] Of the bulk of new yeast cells

[D] The rapidly reproducing yeast cells release CO₂ due to anaerobic respiration

7 Depletion of water table refers to

[A] Going down of water table

[B] The increase in depth of water table

[C] Both the above are correct

[D] None of the above is correct

8 The hydra pushes food into its mouth by using

[A] Cilia

[B] Tentacles

[C] Proboscis

[D] Pseudopodia

9 On the basis of following features identify the correct fibre

It is originally a natural product

It is obtained from animals

It traps and retains a lot of air and is suitable to wear in winter

[A] Silk

[B] Wool

[C] Jute

[D] Polyester

10 A neutralization reaction

[A] Includes an acid and a base

[B] Produces a salt

[C] Forms water

[D] All of the above

11 What happens when we cut an apple and keep the slices exposed to air for some time?

- [A] The colour of the cut surface becomes brown
- [B] The change in colour is due to chemical reaction between air and enzymes
- [C] Both (A) & (B)
- [D] None of these

12 Match the list I with the list II and select the correct option.

List I		List II	
I	Sting of ant	P	Litmus
II	Alkali	Q	Soluble base
III	Indicator	R	Base
IV	Bitter	S	Formic acid

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

13 Anaerobic bacteria digest animal waste and produce biogas (Change A). The biogas is then burnt as a fuel (Change B). The following statements are related to these changes. Choose the correct option.

- [A] Change A is a chemical change whereas change B is a physical change
- [B] Change B is a chemical change whereas change A is a physical change
- [C] Both A and B are physical changes
- [D] Both A and B are chemical changes

14 If you mix 100gm of salt in 100 gm of water, the substance formed is a

- [A] Element
- [B] Compound
- [C] Mixture
- [D] Solvent

15 Which of the following statements is true?

- [A] Indicator is a substance that shows different colours in acidic and basic solution
- [B] Turmeric stain on a white shirt turns to red when it is washed with soap
- [C] Lime water is a solution of calcium hydroxide
- [D] All the above are correct

16 The gas we use in the kitchen is called liquefied petroleum gas (LPG). In the cylinder it exists as a liquid. When it comes out from the cylinder it becomes as a gas (PROCESS X) and then it burns (PROCESS Y). The following statements are related to these changes. Choose the correct one.

- [A] Process X is a chemical change
- [B] Process Y is a chemical change
- [C] Both the processes X and Y are chemical changes
- [D] Both the processes X and Y are physical changes

17 If a cyclist covers a distance of 3km in 5 minutes, what is the speed of the cyclist?

- [A] 100 m/s
- [B] 360 km/h
- [C] 100 cm/s
- [D] 600 m/min

18 Water is used as coolant because

- [A] It has high specific heat capacity
- [B] It is easily available
- [C] It is good conductor of heat
- [D] It is in expensive

19 An electric heater can supply 500kJ of heat per minute. How much time will it take to heat 10kg of water from 35°C to 85°C?

- [A] 8.4 minute
- [B] 3 minute
- [C] 4.2 minute
- [D] 12.6 minute

20 One litre of water at 30°C is mixed with one litre of water at 50°C. The temperature of the mixture will be

- [A] 80°C
- [B] More than 50°C but less than 80°C
- [C] 20°C
- [D] Between 30°C and 50°C

21 Usage of shoes reduces the harm of an electric shock. This happens because

- [A] Shoes can absorb electric current
- [B] Shoes prevent earthing
- [C] Shoes produce friction
- [D] Shoes are generally good conductors

22 Why are cloudy nights warmer than clear nights?

- [A] The clouds do not allow the heat radiating from the earth to escape
- [B] Amount of moisture in the air increases
- [C] The clouds result in heavy rainfall at night
- [D] Both (A) & (C)

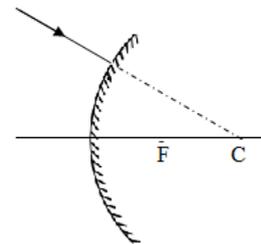
23 Which of the following actions will decrease the strength of the magnetic field of an electromagnet?

- [A] Using fewer loops of wire per meter in the coil
- [B] Decreasing the current in the wire
- [C] Removing the iron core
- [D] All of the above

24 The following diagram shows a ray falling on a convex mirror.

After reflection the ray will appear to come from

- [A] F
- [B] C
- [C] Between F & C
- [D] Between mirror & F



25 The temperature of the substance remains constant when it is melting and boiling though some quantity of heat is supplied. What happens to this heat energy?

- [A] It is dissipated as sound energy
- [B] It is used to increase the energy of the molecules
- [C] It is used to change the state of the substance
- [D] It is still an unsolved problem in science

MATHEMATICS (Question No 26 to 40)

26 A virus is **0.00000012** metres in diameter. Which of these expresses this distance in scientific notation?

- [A] 1.2×10^{-7}
- [B] 1.2×10^{-6}
- [C] 12×10^{-6}
- [D] 12×10^{-7}

27 When 8 is subtracted from a number it become 60% of the number itself. The number is

[A] 10

[B] 20

[C] 30

[D] 40

28 The algebraic form of the pattern **-1, 0, 3, 8, 15 ...** is

[A] $n^2 - 1$

[B] $2n^2 + 1$

[C] $n(n - 1)$

[D] $2n + 1$

29 Find the product

$$(4s^2t) \times (3s^3t^3) \times (2st^4) \times (-2)$$

[A] $22s^6t^8$

[B] $-48s^6t^8$

[C] $-48s^6t^{12}$

[D] $22s^6t^8$

30 Find the value of the following

$$1 + \frac{1}{1 + \frac{1}{1 - \frac{2}{3}}}$$

[A] $\frac{4}{5}$

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

[C] $\frac{5}{4}$

[D] 1

31 In triangle PQR, if $QR^2 = PQ^2 + PR^2$, then the triangle is right angled at

[A] P

[B] Q

[C] R

[D] Q or R

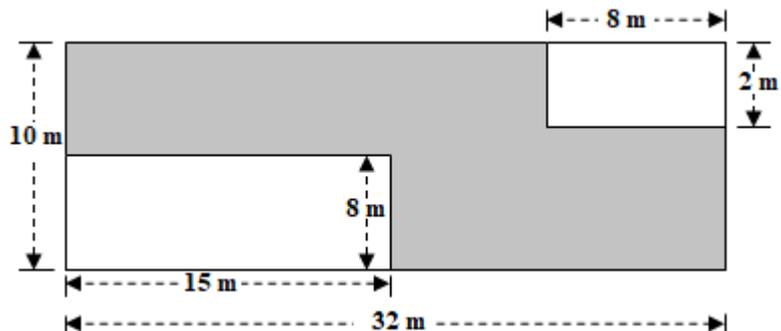
32 What is the area of the shaded region in the figure given below?

[A] 136 m^2

[B] 140 m^2

[C] 184 m^2

[D] 186 m^2



33 The value of x for which $\left(\frac{81}{16}\right)^5 \times \left(\frac{81}{16}\right)^x = \left(\frac{3}{2}\right)^{20}$ is

[A] 4

[B] 3

[C] 1

[D] 0

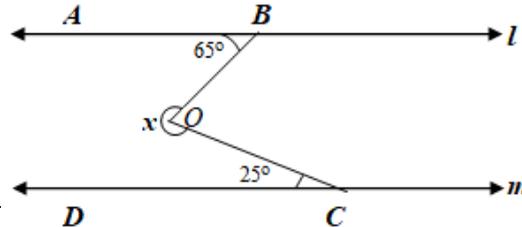
34 In the following figure, $l \parallel m$, $\angle ABO = 65^\circ$ and $\angle OCD = 25^\circ$. What is the value of x ?

[A] 280°

[B] 270°

[C] 300°

[D] 100°



35 Read the following statements carefully and select the correct statement.

P : Every fraction is a rational number

q : Every rational number is a fraction

[A] p is true and q is false

[B] p is false and q is true

[C] Both p and q are true

[D] Both p and q are false

36 By what number should $(-15)^{-1}$ be divided so that the quotient is $(-5)^{-1}$?

[A] 3^{-1}

[B] 3

[C] 2

[D] 2^{-1}

37 The HCF of two numbers is 28 and their LCM is 336. If one number is 112, then the other number is

[A] 64

[B] 84

[C] 34

[D] None of these

38 A man spends 92% of his monthly income. If he saves ₹ 220 per month, his monthly income is

[A] ₹ 2850

[B] ₹ 2650

[C] ₹ 2750

[D] ₹ 2700

39 The perimeter of a circular plot is equal to that of a square plot. What is the ratio of their respective areas?

[A] 13 : 11

[B] 14 : 11

[C] 15 : 11

[D] 16 : 11

40 If angles of triangle are in the ratio 1 : 2 : 1, then which of the following statement (s) is / are correct?

(i) Triangle is right angled triangle (ii) Triangle is an isosceles angled triangle

(iii) Angles of triangle are 45° , 45° and 90° respectively

[A] (i) & (ii) are correct

[B] Only (iii) is correct

[C] (ii) & (iii) are correct

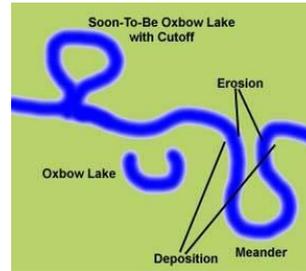
[D] (i), (ii) & (iii) are correct

SECTION B

- 41 Which of the following groups consist of only output devices?
[A] Scanner, Printer, Keyboard [B] Mouse, Printer, Keyboard
[C] Plotter, Printer, Monitor [D] Scanner, Monitor, Keyboard
-
- 42 Which of the following is database software?
[A] MS Word [B] MS Access
[C] MS Power Point [D] Acrobat Reader
-
- 43 The computer industry uses prefixes of Greek origin to measure large amounts of data. Which term describes 1024 bytes?
[A] Kilobyte [B] Megabyte
[C] Gigabyte [D] Terabyte
-
- 44 A light sensitive device that converts drawing, printed text or other images into digital form is
[A] OMR [B] Plotter
[C] Printer [D] Scanner
-
- 45 Which of the following is not a term pertaining to Email?
[A] Inbox [B] Compose
[C] Bcc [D] Chat
-
- 46 Consider the following statement:
A Turkish slave by origin he was purchased by Muhammad Ghori who later made him governor. After the death of his master he became the leader of the Hindusthan.
This statement is about:
[A] Muhammad Gazni [B] Qutub - ud – di Aibak
[C] Balban [D] Muhammad Ghori
-
- 47 Which of the following is not ruled India during ‘Sultanate Period’?
[A] Slave Dynasty [B] Khalji Dyanasty
[C] Mughal Empire [D] Sayyid Dynasty
-
- 48 ‘**The concept of democracy originated in ancient period itself**’. In which one of the following countries the concept of democracy originated first time?
[A] India [B] Britain
[C] Rome [D] Greece
-
- 49 Which of the following is not ruled India during ‘Sultanate Period’?
[A] Slave Dynasty [B] Khalji Dyanasty
[C] Mughal Empire [D] Sayyid Dynasty
-
- 50 The Second World War fought between:
[A] Germany and Britain [B] Axis and Central
[C] Allies and Axis [D] Allies and Central

51 The following geographical forms are related to:

- [A] Rivers
- [B] Ocean
- [C] Glaciers
- [D] Deserts



52 Who was the last powerful Mughal ruler?

- [A] Akbar
- [B] Aurangzeb
- [C] Bahadursha Zafar
- [D] Babur

53 Identify the country which is situated in 'Pacific Ocean'



- [A] Singapore
- [B] Japan
- [C] Indonesia
- [D] United Kingdom

54 London is located at 0° while Bagdad at 45° . If news is broadcasted from London at 10a.m. at what time will it be herded at Bagdad?

- [A] 11.30 a.m.
- [B] 2.00a.m.
- [C] 1.00p.m.
- [D] 12.30p.m.

55 Study the following information carefully and answer the questions:

Point B is 25 m south of point A. Point C is 30 m east of point B. Point D is 15 m north of point C. Point E is 10 m west of point D.

- [A] Northwest
- [B] West
- [C] North
- [D] Southeast

56 Find the word which is least like the other words in the group.

- [A] Femur
- [B] Patella
- [C] Fibula
- [D] Skull

57 Five girls are sitting in a row. Seema is sitting to the right of Rajani and to the left of Geeta. Anita is sitting to the left of Rajani. Aarti is sitting between Rajani and Anita. Who is sitting to the left of Aarti ?

- [A] Geeta
- [B] Anita
- [C] Rajani
- [D] Seema

58 Identify the missing term in the following table:

- [A] 9
- [B] 8
- [C] 7
- [D] 6

7	9	8
8	9	?
4	9	6
60	90	70

59 When is World Children's Day observed?

- [A] 14th November
- [B] 17th November
- [C] 18th November
- [D] 20th November

60 Thumba Equatorial Rocket Launching Centre is located in which state of India?

- [A] Andhra Pradesh
- [B] Tamil Nadu
- [C] Kerala
- [D] Karnataka

61 In the following question, select the odd word pair from the given alternatives.

- [A] Petrol - Car
- [B] Oil - Lamp
- [C] Coal - Engine
- [D] Smoke - Fire

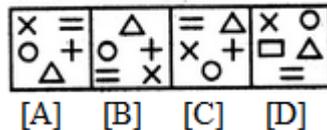
62 Pointing to a person, a man said to a woman, "His mother is the only daughter of your father." How was the woman related to the person?

- [A] Aunt
- [B] Mother
- [C] Wife
- [D] Daughter

63 Three of the following four numbers are alike in a certain way and one is different. Pick the number that is different from the rest.

- [A] 126
- [B] 189
- [C] 254
- [D] 217

64 Choose the figure which is different from the rest.

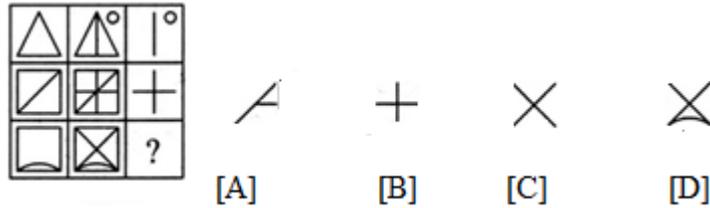


65 Replace the question mark

MHZ, NIW, OKT, PNQ, ?

- [A] RRN
- [B] QRN
- [C] QRM
- [D] QQN

66 Replace the question mark.



67 What should come in place of question mark in the following series?

10, 12, 32, 34, 54, 56, ?

[A] 58

[B] 76

[C] 61

[D] 66

68 In a code language, BROKE is written as DOSFK, START is written as UQEMZ, then INDIA is written as

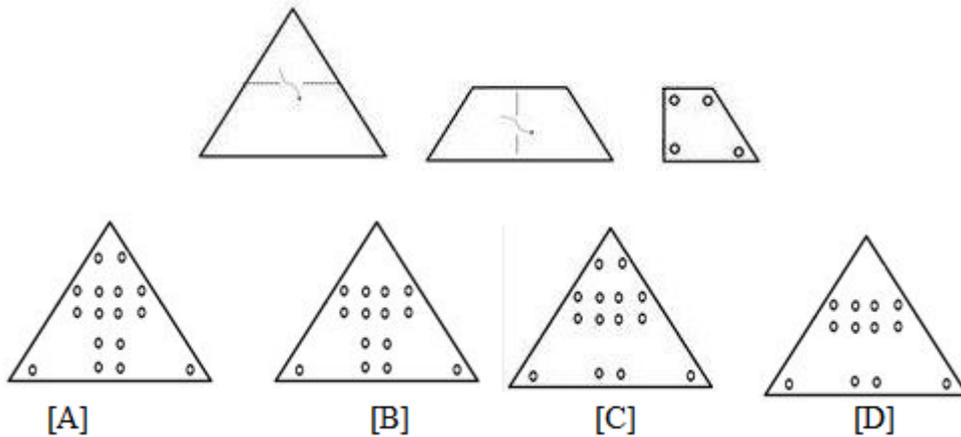
[A] KHDKG

[B] KKHDG

[C] DHGKK

[D] KHGKD

69 A piece of paper is folded and punched as shown below. From the given responses indicate how it will appear when opened.



70 Choose the image that completes the pattern

