
SCIENCE

- 1 Which of the following is a free living nitrogen fixing bacteria present in the soil?
- [A] Azotobacter [B] Nitrosomonas
[C] Rhizobium [D] Pseudomonas
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- 2 Among the following, which is not true about vaccines?
- [A] Vaccine contain dead microbial cells or their parts
[B] Vaccines contain antibiotics to prevent diseases
[C] Vaccine contains special proteins which evoke immune system against disease
[D] Vaccines contain inactivated micro-organisms
-
- 3 What are *Fungi Imperfecti*?
- [A] They are fungi that reproduce only sexually
[B] They are the fungi that reproduce exclusively by vegetative and asexual method
[C] They are the fungi which only show parasitic mode of nutrition
[D] None of the above
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- 4 A person suffering from diabetes mellitus drinks water more frequently to eliminate excess quantity of **X** from the blood. Identify **X**
- [A] Salt [B] Sugar
[C] Insulin [D] Protein
-
- 5 **Read the following statement of assertion and statement of reason carefully and select correct option.**
- Assertion:** Crop improvement can be done by breeding new varieties of crops having higher yields
- Reason :** The main aim of plant breeding is to produce new crops superior to existing ones
- [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
-
- 6 Most animals have internal or external skeletons for structure and support. Which of the following parts provide a similar function in plant cells?
- [A] Cytoplasm [B] Chloroplasts
[C] Cell membranes [D] Cell walls
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- 7 The milk is processed by sterilization for long time storage. Which of the following statement is incorrect regarding this process?
- [A] In low temperature long time method, milk is heated at 62°C to 63°C for 1 hour and then cooled
 - [B] In high temperature short time method, the milk is heated to 71°C to 72°C for 15 seconds and then cooled
 - [C] Low temperature long time method is used in small dairies
 - [D] None of these
-
- 8 The ovary contains many follicles consists of a developing egg cells surrounded by an outer layer of follicle cells. At birth each female carries a lifetime supply of developing such follicles. These follicles are called
- [A] Eggs
 - [B] Gametes
 - [C] Oocytes
 - [D] Zygote
-
- 9 What is an endangered animal?
- [A] An animal on the verge of extinction
 - [B] An animal which is extinct
 - [C] An animal that is dangerous to other animals
 - [D] An animal that is useful to other animals
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- 10 Which of the following is true statement about conservation programmes?
- I: They protect the ecosystem from destruction
 - II: They present depletion of natural resources
 - III: They maintain the population of endangered plant and animal species
- [A] I only
 - [B] I & II only
 - [C] II & III only
 - [D] I, II & III
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- 11 Which of the following properties of nylon make it most convenient to use?
- [A] It is soft, strong and heavy
 - [B] It is strong, elastic and light
 - [C] It is hard, inexpensive and strong
 - [D] None of the above
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- 12 Fishes die by sewage because
- [A] of its bad smell
 - [B] It replaces the food materials of fishes
 - [C] It increases O_2 competition among fishes
 - [D] CO_2 is mixed in large amount in water

13 Which of the following statement regarding non-metal is true?

- [A] Non-metal are two types only- solids and gases
[B] Non-metals react with oxygen to form basic oxides generally
[C] Non-metals are non-lustrous with dull appearance. Graphite an allotrope of Carbon and Iodine have shining surface
[D] Non-metals replace hydrogen from acids

14 What is the chemical nature of oxides of non-metal?

- [A] Generally acidic [B] Generally alkaline
[C] Generally neutral [D] Alkaline or neutral only

15 Which substance is formed by the carbonization of dead vegetation?

- [A] Coal [B] Coke
[C] Coal gas [D] Coal tar

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

Assertion: Candle burns with a flame whereas coal does not

Reason : Coal is converted to vapour on combustion

- [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 Incomplete combustion of petrol in automobiles can be detected by the presence of

- [A] CO₂ and water vapour [B] Carbon monoxide
[C] Sulphur dioxide [D] Nitrogen dioxide

18 Your mother takes out an old copper pan and finds that it has become dull and green in colour. What do you think the green colour is due to?

- [A] Cu(OH)₂ [B] CuCO₃
[C] Cu(OH)₂ + CuCO₃ [D] CuO + CuCO₃

19 One gram of which of the following will give out the most amount of heat by complete combustion?

- [A] Wood [B] Coal
[C] Diesel [D] Kerosene

20 Food cans are coated with tin and not with zinc. This is because

- [A] Zinc is costlier than tin
- [B] Zinc has a higher melting point than tin
- [C] Zinc is more reactive than tin
- [D] Zinc is less reactive than tin

21 On the basis of following features identify the correct process.

- I : This process can be carried out with or without catalyst
- II : This process is carried out to meet the increasing demands of gasoline
- III : In this process higher hydrocarbons breakdown to give smaller hydrocarbons

- [A] Refining
- [B] Destructive distillation
- [C] Cracking
- [D] Reforming

22 Metal X reacts very slowly with water but reacts vigorously with steam. Identify metal X

- [A] Magnesium
- [B] Silver
- [C] Copper
- [D] Potassium

23 Combustion reaction are

- [A] Oxidation and endothermic reactions
- [B] Oxidation and exothermic reactions
- [C] Reduction and endothermic reactions
- [D] Reduction and exothermic reactions

24 Which of the following statements are correct?

- (i) Natural gas can be supplied to homes and factories through pipes
- (ii) Natural gas is obtained by fractional distillation of crude oil
- (iii) Natural gas is a cleaner fuel because on burning only water is produced
- (iv) Natural gas is an exhaustible source of energy like fossil fuel

- [A] (i) & (iii)
- [B] (ii) & (iii)
- [C] (i) & (iv)
- [D] (i), (ii) & (iv)

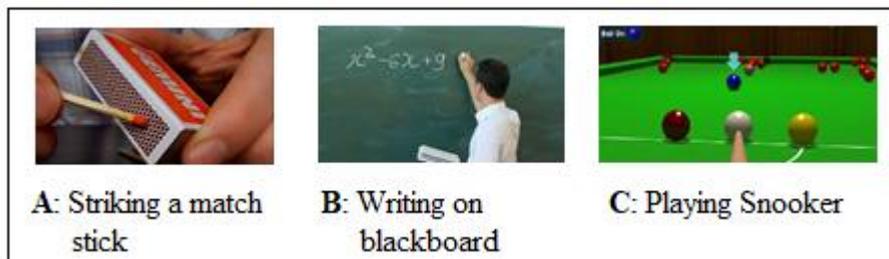
25 Graphite and diamond differ in physical properties

Which one of the following is true?

- [A] Diamond is pure but graphite is impure
- [B] They have different molecular weights
- [C] They are made up of different elements
- [D] The crystalline structure are different

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- 26 A person is standing in an elevator. In which situation he finds his weight less than actual.
- [A] When the elevator moves upward with constant acceleration
 - [B] When the elevator moves downward with constant acceleration
 - [C] When the elevator moves upward with uniform velocity
 - [D] When the elevator moves downward with uniform velocity
-

27 Look at the pictures given below



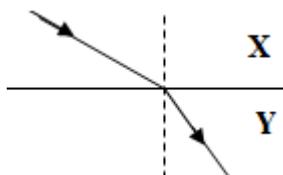
Identify the picture in which friction plays a helpful role.

- [A] A and B only
 - [B] B and C only
 - [C] A and C only
 - [D] A, B and C
-
- 28 A sample of metal weighs 210g in air, 140g in water and 120g in an unknown liquid. Then
- [A] The density of the metal is 3g/cm^3
 - [B] The density of the metal is 7g/cm^3
 - [C] The density of the metal is 4 times the density of unknown liquid
 - [D] The metal still float in water
-
- 29 An object is placed on the axis of a convex lens on the one side. If the image is erect, the object is kept
- [A] Beyond $2F$
 - [B] Between $2F$ and F
 - [C] At $2F$
 - [D] Between F and the lens
-
- 30 The force of friction acting on a car on different roads in the increasing order of magnitude will be
- [A] Mud, Tar, Concrete and gravel roads
 - [B] Tar, Concrete, Gravel and mud roads
 - [C] Concrete, Tar, Gravel and mud roads
 - [D] Gravel, Mud, Tar and concrete roads
-
- 31 A lightning conductor installed in a building
- [A] Does not allow the lightning to fall on the building
 - [B] Repel the lightning
 - [C] Force the lightning to fall in an area where there are no buildings
 - [D] Conducts electric charges to the ground when lightning strikes the building

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- 32 A source of sound of frequency 600Hz is placed inside water. The speed of sound in water is 1500m/s and in air is 300m/s. The frequency of sound recorded by an observer who is standing in air is
- [A] 200 Hz [B] 3000 Hz
[C] 120 Hz [D] 600 Hz
-

- 33 The terminals of a battery are joined by a length of resistance wire. Which change, on its own will decrease the current through the battery?
- [A] Connecting an identical wire in series with the first one
[B] Covering the wire with plastic insulation
[C] Using a shorter wire of the same material and same thickness
[D] Using a thicker wire of the same material and same thickness
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- 34 Light travels from medium X to medium Y as shown in the figure given below. Then



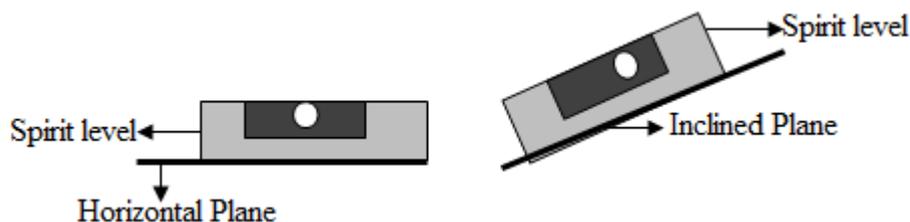
- [A] Both the speed and frequency decreases
[B] Speed increases and frequency decreases
[C] The speed and wavelength decreases
[D] The speed increases and wave length decreases
-
- 35 *Read the following statement of assertion and statement of reason carefully and select correct option.*

Assertion: When a charged comb is brought near a small piece of paper, it attracts the piece of papers

Reason: Because the paper becomes charged

- [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

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- 36 A spirit level is used to determine the surface level. As shown in figure, the air bubble will be at centre of the tube if the surface is horizontal. This is because



- [A] Equilibrium of forces on the air bubble
- [B] Balanced pressure on the air bubble
- [C] The property of air bubble
- [D] Gravitational forces

Questions 37 to 40: Read the following passage and answer the questions that follow.

Most of the organochlorine pesticides such as DDT, BHC etc. are very slow in their degradation. Only 5% of the DDT is degraded every year in the soil. Moreover, they are lipophilic in nature and easily accumulate in the stored fats of organisms. These two properties of organochlorine, particularly DDT, led the pesticide to accumulate in the pests and in the vegetation and through them in the food chain of animals and men. For example DDT sprayed in the fields moves to the water reservoirs through surface runaway water. The fishes living in the water contaminated by DDT store the pesticide in their fats. It has been observed that fishes have 1,000,000 times more DDT concentration than that found in water. The birds eating these fishes get large doses of DDT. Finally DDT enters in to the body of human beings who eat these fishes and birds.

DDT affects the calcium production in the birds hence their eggs remain weak and break before hatching. In the U.S.A the peregrine falcons, Osprey and bald eagles almost vanished from Louisiana due to widespread use of DDT. In 1972 a ban was imposed by USA on the use of DDT and this resulted in the return of the endangered bird pelican in Louisiana

- 37 DDT is harmful because
- [A] It degrades very slowly
 - [B] It enters the food chain and gets accumulated at every trophic level
 - [C] I causes damage to the tissue of animals
 - [D] All the above
- 38 Why is DDT referred as lipophilic in nature?
- [A] It degrades very slowly
 - [B] It gets accumulated at every trophic level
 - [C] It gets accumulated in the stored fat of organisms
 - [D] All the above

39 In the below given aquatic food chain which organism will have maximum concentration of DDT?

Algae → Small fish → Big fish → Bird

- [A] algae [B] small fish
[C] bird [D] all have the same amount

40 DDT can cause extinction of bird's population because

- [A] It affects the calcium production in birds
[B] It is highly toxic and cause immediate death of birds
[C] It cause indigestion in birds
[D] all the above

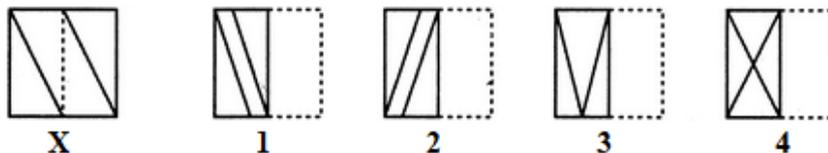
LOGICAL REASONING

41 Carefully observe the following pattern and complete the series

QAR, RAS, SAT, TAU, _____

- [A] UAV [B] UAT
[C] TAS [D] TAT

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



- [A] 1 [B] 2
[C] 3 [D] 4

43 If the following names were arranged in alphabetical order, which name would be in the third place?

- [A] Elm Trading Company
[B] Eldorado Trucking Corp.
[C] James Eldred Jewelry Store
[D] Eldridge Printing, Inc.

44 Starting from the ground floor, John takes an elevator to the 10th floor. John then goes down 2 floors and up 8 floors. John is on what floor?

- [A] 20 [B] 18
[C] 16 [D] 14

45 Consider following three digit numbers:

519 328 746 495 837

If half of the second highest number is subtracted from the third highest number, what will be the value?

- [A] 156 [B] 146
[C] 166 [D] 126

46 A person travel 12km. north, then 15km. east, after that 15km. west, then 18 km south how far he is from starting point?

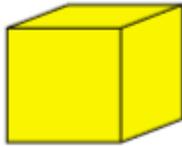
[A] 6km.

[B] 12km.

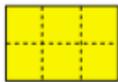
[C] 33km.

[D] 66km.

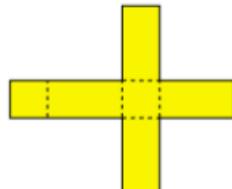
47 Here is a cube



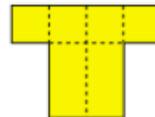
Which net below will fold to make a cube?



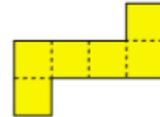
[A]



[B]

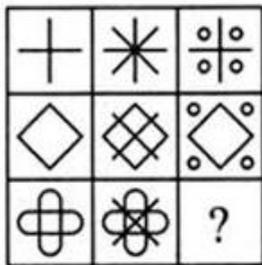


[C]



[D]

48 Replace the question mark:



[A]



[B]



[C]



[D]

49 Blake made up the following code.

0	1	2	3	4	5	6	7	8	9

Based on the above code which of the following codes correctly shows the number 957 286 304?



[A]



[B]

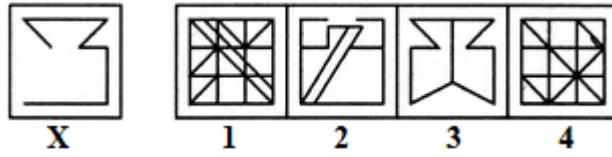


[C]



[D]

50 Find out the alternative figure which contains figure (X) as its part.



[A] 1

[B] 2

[C] 3

[D] 4

SPACE FOR ROUGH WORK