

Observational Skills

Total Questions: 25 | Total Time: 60 mins

Question: 1

[Single Correct Option, +4, -1]

Radiocarbon is produced in the atmosphere as a result of

- A Collision between fast neutrons and nitrogen nuclei present in the atmosphere.
- B Action of ultraviolet light from the sun on atmospheric oxygen
- C Action of solar radiations particularly cosmic rays on carbon dioxide present in the atmosphere
- D Lightning discharge in atmosphere

Question: 2

[Single Correct Option, +4, -1]

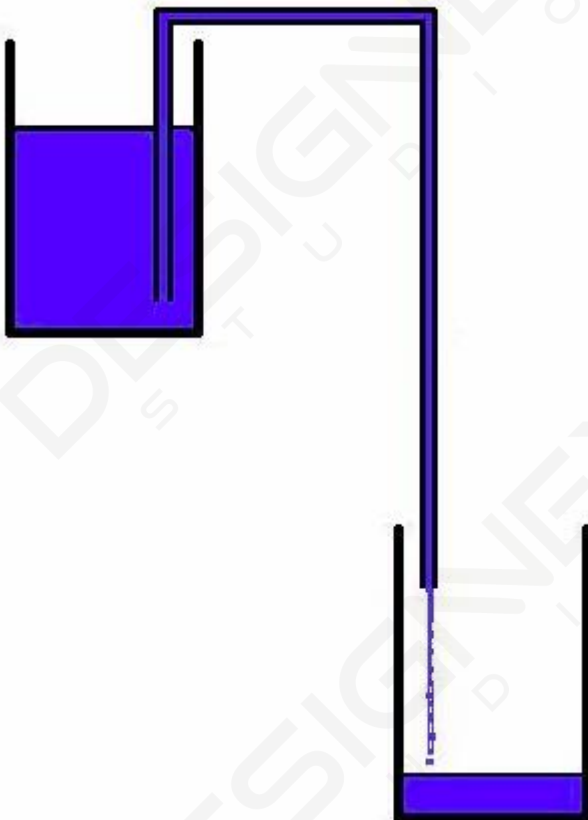
It is easier to roll a stone up a sloping road than to lift it vertical upwards because

- A Work done in rolling is more than in lifting.
- B Work done in lifting the stone is equal to rolling it.
- C Work done in both is same but the rate of doing work is less in rolling.
- D Work done in rolling a stone is less than in lifting it.

Question: 3

[Single Correct Option, +4, -1]

The following setup will fail to work if:



- A The densities of the liquid in the two vessels are equal.
- B The level of the liquid in the two vessels are at the same height.
- C Both its limbs are of unequal length.
- D The temperature of the liquids in the two vessels are the same.

The temperature of the liquids in the two vessels are the same.

Question: 4

[Single Correct Option, +4, -1]

Nuclear sizes are expressed in a unit named

- ☐ A Fermi
- ☐ C Newton

- ☐ B Angstrom
- ☐ D Tesla

Question: 5

[Single Correct Option, +4, -1]

Mirage is due to:

- ☐ A Unequal heating of different parts of the atmosphere
- ☐ C Depletion of ozone layer in the atmosphere

- ☐ B Magnetic disturbances in the atmosphere
- ☐ D Equal heating of different parts of the atmosphere

Question: 6

[Single Correct Option, +4, -1]

Light from the Sun reaches us in nearly

- ☐ A 2 minutes
- ☐ C 8 minutes

- ☐ B 4 minutes
- ☐ D 16 minutes

Question: 7

[Single Correct Option, +4, -1]

It is more difficult to walk on a sandy road than on a concrete road because

- ☐ A sand is soft and concrete is hard.
- ☐ B the friction between sand and feet is less than that between concrete and feet.
- ☐ C the friction between sand and feet is more than that between concrete and feet.
- ☐ D the sand is grainy but concrete is smooth.

Question: 8

[Single Correct Option, +4, -1]

Materials for rain-proof coats and tents owe their water-proof properties to

- ☐ A surface tension
- ☐ B viscosity
- ☐ C specific gravity
- ☐ D elasticity

Question: 9

[Single Correct Option, +4, -1]

On a rainy day, small oil films on water show brilliant colours. This is due to

- ☐ A dispersion
- ☐ B interference
- ☐ C diffraction
- ☐ D polarization

Question: 10

[Single Correct Option, +4, -1]

On a clean glass plate a drop of water spreads to form a thin layer whereas a drop of mercury remains almost spherical because:

- ☐ A mercury is a metal.
- ☐ B density of mercury is greater than that of water.
- ☐ C cohesion of mercury is greater than its adhesion with glass.
- ☐ D cohesion of water is greater than its adhesion with glass.

Question: 11

[Single Correct Option, +4, -1]

It takes much longer to cook food in Shimla than in the New Delhi, because

A

in the hills the atmospheric pressure is lower than that in the plains and therefore water boils at a temperature lower than 100°C causing an increase in cooking time

B

due to low atmospheric pressure on the hills, the water boils at a temperature higher than 100°C and therefore water takes longer to boil

C

in the hills the atmospheric density is low and therefore a lot of heat is lost to the atmosphere

D

in the hills the humidity is high and therefore a lot of heat is absorbed by the atmosphere leaving very little heat for cooking

Question: 12

[Single Correct Option, +4, -1]

Inside an aeroplane, flying at a high altitude,

A

the pressure is the same as that outside.

B

normal atmospheric pressure is maintained by the use of air pumps.

C

the pressure inside is less than the pressure outside.

D

normal humidity and partial vacuum are maintained.

Question: 13

[Single Correct Option, +4, -1]

Sound travels with a different speed in media. In what order does the velocity of sound increase in these media?

A

Water, iron and air

B

Iron, air and water

C

Air, water and iron

D

Iron, water and air

Question: 14

[Single Correct Option, +4, -1]

Oil raise up the wick in a lamp. The principle involves



A

the diffusion of oil through the wick

B

the liquid state of oil

C

capillary action phenomenon

D

volatility of oil

Question: 15

[Single Correct Option, +4, -1]

Railway tracks are banked (raising the outer **rail** or the outer edge of the road creates a banked turn) on curves because



- A necessary centrifugal force may be obtained from the horizontal component weight of the train
- B to avoid frictional force between the tracks and wheels
- C necessary centripetal force may be obtained from the horizontal component of the weight of the train
- D the train may not fly off in the opposite direction

Question: 16**[Single Correct Option, +4, -1]**

On a cold day when a room temperature is 15°C , the metallic cap of a pen becomes much colder than its plastic body, though both are at the same temperature of 15°C , because

- A metals have higher thermal capacity than plastics
- B plastics have a lower density than metals
- C metals are good conductor of heat
- D plastics have a higher thermal conductivity than metals

Question: 17**[Single Correct Option, +4, -1]**

Of the four locations mentioned below if a pressure cooker is operated with the pressure valve open, the highest inside temperature will be attained



- A in Lucknow
- B at the top of Mt. Everest
- C at a place in a valley below sea level
- D in an aeroplane flying at a height of 10,000 m with inside pressure maintained at the sea level

Question: 18**[Single Correct Option, +4, -1]**

On a stationary sail boat, air is blown from a fan attached to the boat. The boat

- A moves in opposite direction in which the air is blown
- B does not move
- C moves in the same direction in which air blows
- D spins around

Question: 19**[Single Correct Option, +4, -1]**

Sir C.V. Raman was awarded Nobel Prize for his work connected with which of the following phenomenon of radiation?



A Scattering

B Diffraction

C Interference

D Polarization

Question: 20

[Single Correct Option, +4, -1]

Rainbow is produced when sunlight fall on drops of rain. Which of the following physical phenomena are responsible for this?

I. Diffusion

II. Refraction

III. Internal reflection

A I, II and III

B I and II

C II and III

D I and III

Question: 21

[Single Correct Option, +4, -1]

It is easier to roll a barrel full of coal tar than to pull it because

A the full weight of the barrel comes into play when it is pulled

B the rolling friction is much less than the sliding friction

C more surface area of the barrel is in contact with the road when it is pulled

D coal tar is a liquid and it flows in the barrel when it is rolled

Question: 22

[Single Correct Option, +4, -1]

During thunderstorm you are travelling in a car. To protect yourself from the lightning you will have to

A Remain in the car

B Get out of the car and lie flat in the ground

C Abandon the car and take shelter under a nearby tree

D Touch the nearest electric pole

Question: 23

[Single Correct Option, +4, -1]

A bird sitting on a high tension electric wire does not get electrocuted because

A It has high resistance

B The body is earthed

C It does not form a closed path for the flow of current

D Its feet are good insulators

Question: 24

[Single Correct Option, +4, -1]

At hill stations Mussoorie, the boiling point of water will be

A Same as that of Delhi

B Less than that at Delhi

C More than that at Delhi

D Equal to the melting point of ice

Question: 25

[Single Correct Option, +4, -1]

To open a door easily, the handle should be fixed

A Near the hinges

B Away from mid-point opposite to hinges

C In the middle

D None of these

Sketching

Total Questions: 3 | Total Time: 60 mins

Question: 1

[Single Correct Option, +1, -0]

Identify one particular thing that you do everyday when you wake up and represent it with a neat sketch.

A Next Question

Question: 2

[Single Correct Option, +1, -0]

Design a product for a 50 year old person that will help him in doing two of his day-to-day activities. Represent your sketch with neat sketches. Also show how the user will interact with the product that you have designed.

A Next Question

Question: 3

[Single Correct Option, +1, -0]





Shown above is a product used for a certain purpose. Write a story that revolves around the product in not more than 150 words.

A

Next Question

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