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SUPPLEMENTARY EXAM: 2023-24

CLASS: IX

SUBJECT: SCIENCE

MARKING SCHEME

Answer 1:(d) does not rise at all

Answer 2:(c) competing for various resources of crops (plants) causing low availability of

nutrients

Answer 3:(d) all of the above

Answer 4:(b) sclerenchyma

Answer 5:(c) iron

Answer 6:(b) displacement

Answer 7:(a) sieve tube

Answer 8:(a) (i) and (iii)

Answer 9:(b) accelerated

Answer 10:(d) newton

Answer 11:(c) protein synthesis

Answer 12:(d) two atoms are said to be isobars if they have the same mass number but

different atomic numbers.

Answer 13:(c) 18

Answer 14:(b) move forward

Answer 15:(a) 1/12th mass of c-12 atoms

Answer 16:(c) osmosis

Answer 17:(c)

Answer 18:(b)

Answer 19:(c)

Answer 20(a)

Answer 21: (1+1)

Speed	Velocity
The rate at which an object covers a certain distance is known as speed.	The rate at which an object changes position in a certain direction.
Speed cannot be negative or zero.	It can be negative or zero.
Speed is a scalar quantity.	It is a vector quantity.
Example: a man making a roundabout journey at a speed of 40 kmph.	Example: a woman plans to drive her vehicle at a speed of 76 kmph towards east

Answer 22:sodium oxide: na2o (1+1)

Aluminium chloride: alcl3

Answer 23: third law of motion

Answer 24: when an object falls towards the earth under the effect of the earth's gravitational force alone, then such a motion of a freely falling object is called free fall.

Answer 25: (a)naphthalene balls disappear with time without leaving any solid because they undergo sublimation i.e., they directly change into vapour without passing through the liquid state. 1

(b): we can get the smell of perfume sitting several metres away due to diffusion. 1

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Answer 26:

Answer 27: crop rotation is planting different crops, chosen in a series and grown on a piece of land in a pre-planned succession. 1

The advantages of crop rotation are: 2

• Increase in soil fertility.

• Increase in crop yield from a single field.

• Leguminous plants are grown in crop rotation to help in nitrogen fixation, so nitrogen

fertilizer is not required.

• The crop rotation replenishes the fertility of the soil.

Answer28: a. Endoplasmic reticulum b. Mitochondria c. Golgi apparatus d. Lysosomes e.

Chloroplast f. Nucleus (1/2 x 6 = 3)

Answer 29: sound is produced due to vibrations. When a body vibrates, it forces the adjacent

particles of the medium to vibrate. This results in a disturbance in the medium, which travels

as waves and reaches the ear. Hence, the sound is produced20 hz to 20,000 hz. Any sound

less than 20 hz or greater than 20,000 hz frequency is not audible to human ears. (1+1+1)

Answer 30: given, the initial velocity (u) = 80km/hour = 80000m/3600s= 22.22 ms-1

1

The final velocity (v) = 60km/hour = 60000m/3600s= 16.66 ms-1

 1

Time frame, t = 5 seconds.

Therefore, acceleration (a) =(v-u)/t = (16.66 ms-1

–22.22 ms-1

)/5s

= -1.112 ms-2

Therefore, the total acceleration of the bus is -1.112m.s-2

.

(negative sign indicates that the velocity of the bus is decreasing.) 1

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Answer 31:

Answer 32:molecular mass of h2 = 2 × atomic mass of h = 2 ×1u = 2 u (1/2 x 6 = 3)

Molecular mass of o2 =2× atomic mass of o = 2×16u = 32 u

Molecular mass of cl2 = 2×atomic mass of cl2 = 2×35.5u = 71u

Molecular mass of co2 = atomic mass of c +2×atomic mass of o

= (12+2×16)u = 44u

Molecular mass of ch4 = atomic mass of c+4×atomic mass of h

=(12+4×1)u = 16 u

Molecular mass of c2h6= 2×atomic mass of c +6×atomic mass of h

=(2×12+6×1)u = 30 u

Answer 33: a - liquefication/melting/fusion

B - vapourisation/evaporation, c-condensation, d-solidification,

e -sublimation, f- sublimation. (1/2 x 6 = 3)

Answer 34: (2+1+1)

Tissue is a group of cells that have similar structure and that function together as a unit.

(i) parenchyma functions:

(a) the main function of parenchyma is to store and assimilate food.

(b) transport of materials occurs through cells or cell walls of parenchyma cells.

(ii) collenchyma functions:

(a) it provides mechanical support and elasticity.

(b) it provides tensile strength to the plants.

(iii) sclerenchyma functions:

(a) it is mainly mechanical and protective in function.

(b) it gives strength, rigidity, flexibility and elasticity to the plant body

Answer 35: (1+1+3)

The power is defined as the rate of doing work or the rate at which the energy is transferred or

used or transformed to other forms.

Suppose the work done is w in time t, then

Power = work/time = w/t

The unit of power is watt or w. This is in honour of james watt.

Kilowatt is used to express a larger rate of energy transfer.

1 watt = 1 j/s

1kw = 1000 w = 1000 j/s

1 mw = 106 w

1 horsepower or hp = 746 w

To solve the problem in the given question,

Energy = 1000 j

Work done = w = 1000 j

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Time = t = 10 s

Power of lamp = w/t = 1000/10 = 100watt

Answer 36:

Rutherford's αlpha particle scattering experiment (gold foil experiment). 1

Conclusion of rutherford's scattering experiment (any two): 2

1) most of the space inside the atom is empty because most of the particles passed through the gold foil without getting deflected.

2) very few particles were deflected from their path, indicating that the positive charge of the atom occupies very little space.

3) a very small fraction of α-particles were deflected by very large angles, indicating that all the positive charge and mass of the gold atom were concentrated in a very small volume within the atom

Limitation of rutherford's scattering experiment (any two): 2

1)this atomic model failed to explain the stability of atoms.

2)according to the model, electrons revolve around the positively charged nucleus.

3)this model of the atom also failed to explain the existence of definite lines in the hydrogen spectrum.

Answer 37: (1x4=4)

1.(c) sublimation 2.(b) sodium chloride

3.(c)sublimation 4.(d)evaporation

Answer 38: (1x4=4)

1.(a) 2.(c) 3.(d) 4.(c)

Answer 39:

1. C 2. A 3. B

4. The force of attraction between any two unit masses separated by a unit distance is called

universal gravitational constant.