2.7. IX B Abhinav Science.

Section-A

Phy - 17½/20

1. B
2. A
3. C
4. A
5. D
6. B
7. $a = \left(\frac{v-u}{t}\right) = \frac{0-80}{8} = -10\ ms^{-2}$

$F = ma$

$= 0.1 \times -10\ Kg\ ms^{-2}$

$= -1N$

Considering only the magnitude, 1N

(C)

8. A
9. Momentum is defined as the product of mass and v

$p = mv$

Units are $Kg\ ms^{-1}$ or Ns

where,

Kg - mass/kilograms s - time/~~secs~~ seconds

m - distance/metres N - force/Newtons.

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10. $F \propto a$

$F \propto m$

$F = K \cdot ma$

$K = 1,$

$F = ma \Rightarrow \boxed{a = \frac{F}{m}} \quad -①$

Under the same force,

~~$\frac{F}{2} \neq 2ma$~~

If mass increases force should increase but as that isn't

$\frac{F}{2} = 2m a_1$

$a_1 = \frac{F}{2} \div 2m$

$= \frac{F}{m} \times \frac{1}{4}$

from ①

$a_1 = a \times \frac{1}{4}$

∴ the acceleration is quatured.

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11. C
12. A
13. C
14. B
15
i) trichome / epiblema ; Cortex ; Phloem tissue ; Vascular bundle
ii) Parechyma
iv) G is the pith. It is composed of parenchya cells and is used for food storage and slow transport
iii) It is a dicot stem.

16. Salt solution :-
a) Heterogenious
b) Cannot be filtered
c) It doesn't ~~sediment~~ settle down when kept for a while.
d) Particles are too tiny to be visible.

~~Sugar Solution :-~~
~~a) Heterogenious.~~
~~b) Cannot be fil~~

Suspention of Sand:-

a) Heterogenious
b) Can be filtered
c) The particles will settle down when kept.
e) The particles are vissible to the eye.

17. a) The second laws defines a force.
$F = ma$
b) The third law.
c) The first law of motion.
d) The second law is considered the real law

Section-B

18. Tyndall effect is the scattering of light on small particles, making it look like the beam of light is visible.
It can be observed in a solution of chalk in water and egg albumen in water.

19. a) Solute - Iodine; Solvent - Alcahol; State - Liquid
b) Solute - Potassium permanganate; Solvent - Water; State - Liquid

20. Concentration % = $\frac{\text{mass of solute}}{\text{mass of solution}} \times 100$

mass of solute = 20g
mass of solvent = 0.08kg = 80g
mass of solution = 20 + 80 = 100g

$\frac{20}{100} \times 100$ = **20%**

21. Yes, the balls will start rolling. They will move in the direction in which the train was moving. But, they will not move with the same speed. As the balls are of same size, volume is same, but the density of iron is more, So the mass of iron ball is more. As inertia is proportional to mass, the iron ball will roll slowly.

22. The water sprinklers are designed to push the water in a specific direction. As the water is pushed, by the third law of motion an opposite force acts on the sprinkler, rotating it.

23. Even after 3 years, the nail is only 1 metre from the ground. In trees, the epicall meristem is present on the top and tip of roots, not in the middle. So the nail will be in the same location.

24. Cork is formed once the tree grows old. It is a secondary meristem. The cork is hard and is composed of dead cells. It provides machanical strength to the stem. It has no intercellular spaces, ~~making~~ thus, protecting the tree from other microganisms.

Section - C

25. a) Solubility is the amount of solute present in a saturated solution at a given ~~temperature~~ temparature.

b)

i) The solubility increases with the temparat

ii) Solubility varies with ~~type~~ nature of solute.

~~Potta~~ Potassium permanganate disolves faster than salt.

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26. a) Dispertion phase is the substance getting dissolved. (solute like) in a colloid.
Dispertion medium is the substances which disolves the other in it (solvent like) in a colloid.

b) Dispertion phase - liquid.
Dispertion medium - solid

27. $u = 10^3$ m/s
$v = 0$
$v^2 - u^2 = 2 \times a \times 0.05\,m$
$-(10^3)^2 \div (0.05 \times 2) = a$
$\frac{-10^3}{0.0} = -10^4\,ms^2$

$v = u + at$
$0 = 10^3 + t \times -10^4$
$-10^3 = t \times -10^4$
$t = \frac{-10^3}{-10^4} = \frac{1}{10}\,s$

a) $F = 0.01\,kg \times 10^4$
$= 100\,N$

b) The time taken is $\frac{1}{10}\,s$

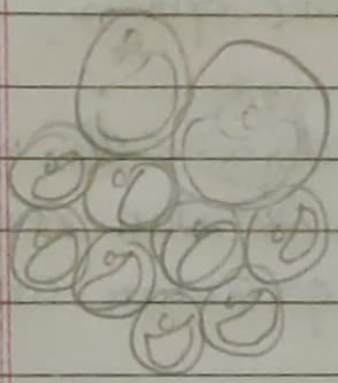
28. a) Due to law of inertia, the fruits stay in the same place, get detached and fall down.

b) When you jump, due to law of inertia you will have the same velocity of the bus, so, when you fall it wont be a straight jump.

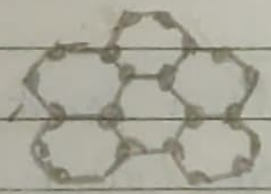
c) Due to law of inertia the moving fan continues to rotate after it is offed.

2½

29.



Parechyma tissue



Collenchyma tissue

Parenchyma	Collenchyma.
→ They are isodiametric	Elongated
→ They have a thin cell wall	Their cell wall is thickned unevenly at the ends.
→ They ~~are~~ fill the places in cells.	They are only found in dicot stems.

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Section - D

30. a) Meristematic ~~tis~~ cells divide constantly. so their focous will be to have a prominent ~~nucleus~~ nucleus and a dense cytoplasm. Vacule is used for storing food. But the cell keeps dividing. So a vacuole is not needed.

b) Sclerenchymatous cells provide support. Having cellular spaces make them soft and weak. So, they dont have spaces.

c) Pear fruit has sclerenchya cells, which are hard and rigid. So when chewing the fruit, we feel ~~the~~ it granular and crunchy.

d) This is because of the collenchyma cells. ~~The~~ They give flexibilaty to the tree.

e) The husk of a coconut tree is made of sclerenchyma fibers. They are extremely hard. It is because of these tissues that the husk is hard to pull out.

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Section-A

15.

v) The part labled as A is the trichome or epiblema. It helps in absorbtion of nutrients and minerals. It traps the air and keeps the plant warm.