



# Rao IIT Academy

**Symbol of Excellence and Perfection**

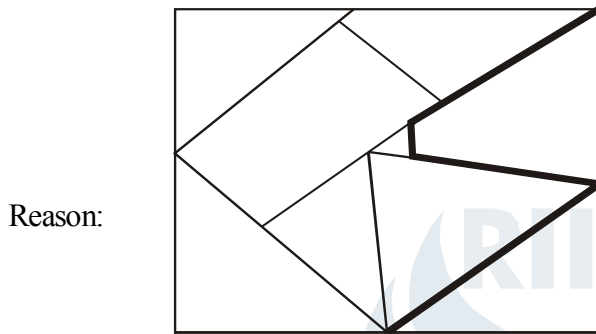
JEE | MEDICAL-UG | BOARDS | KVPY | NTSE | OLYMPIADS | MHT-CET

## SOF - NSO - STAGE-1\_7<sup>TH</sup> STD

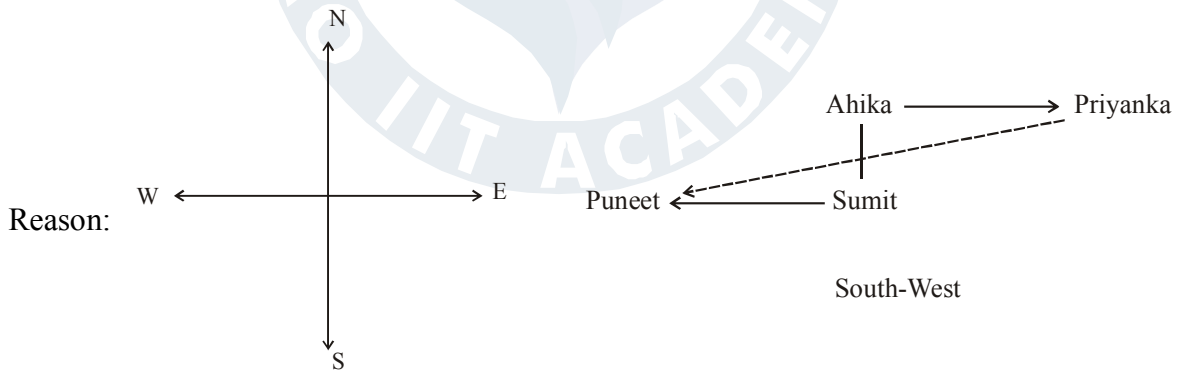
### ANSWER SHEET

- |         |         |         |         |
|---------|---------|---------|---------|
| 1. (A)  | 2. (B)  | 3. (A)  | 4. (B)  |
| 5. (B)  | 6. (B)  | 7. (A)  | 8. (D)  |
| 9. (B)  | 10. (B) | 11. (B) | 12. (C) |
| 13. (D) | 14. (B) | 15. (C) | 16. (C) |
| 17. (A) | 18. (C) | 19. (B) | 20. (B) |
| 21. (A) | 22. (C) | 23. (C) | 24. (C) |
| 25. (B) | 26. (A) | 27. (D) | 28. (C) |
| 29. (B) | 30. (A) | 31. (B) | 32. (A) |
| 33. (C) | 34. (*) | 35. (C) | 36. (B) |
| 37. (B) | 38. (C) | 39. (*) | 40. (D) |
| 41. (B) | 42. (C) | 43. (B) | 44. (C) |
| 45. (B) | 46. (B) | 47. (B) | 48. (B) |
| 49. (A) | 50. (A) |         |         |

1. (A)  
Reason: The lady is the mother of her cousin.
2. (B)  
Reason: Rotation in anticlockwise direction and figure inside comes out.
3. (A)  
Reason: 4's on 4<sup>th</sup>, 6<sup>th</sup>, 20<sup>th</sup>, 23<sup>rd</sup>, 24<sup>th</sup>, 25<sup>th</sup> and 33<sup>rd</sup> terms satisfy the criterion.
4. (B)  
Reason: First, fourth, fifth and eighth letters are H, O, T, S  
Meaningful words : SHOT and HOST
5. (B)



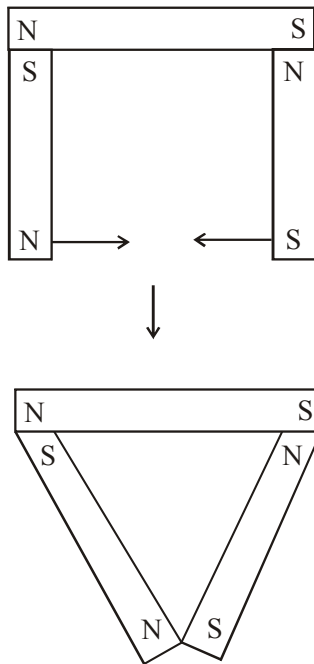
6. (B)



7. (A)  
Reason: Order of letters remain the same but the lateral inversion.
8. (D)  
Reason: There are exactly three letters in between second and 4th letters.  
e.g.  
G H I J K  
I J K L M  
K L M N O  
P Q R S
9. (B)  
Reason: Rivers and oceans are both part of water sources. Also rivers merge in ocean. But source of the rivers dry out in the path itself and are not able to merge in oceans.

10. (B)  
Reason: All the other figures have some extra components.

11. (B)

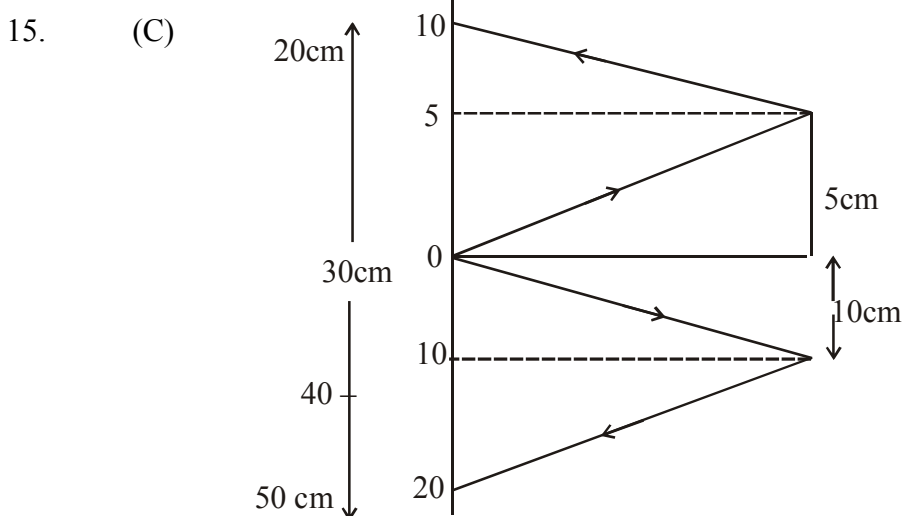


The ends of the rods attached to the bar magnet will develop south and north pole respectively. As a result the other ends of the rods will develop north and south pole respectively, which will attract each other.

12. (C)  
When cyclone comes in contact of land it weakens its energy.

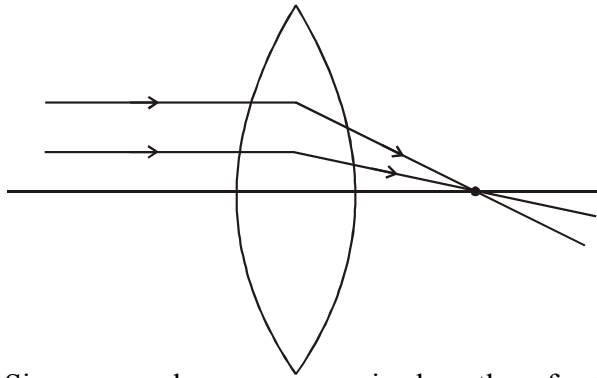
13. (D)  
A good electromagnet is one which gets strongly magnetised on placing it in magnetic field. As 'S' is picking most no. of paper clips, it is the best electromagnet among the four.

14. (B)  
A stone thrown upwards comes to rest due to gravitational force of earth. Hence it is not uniform motion.



If the observer looks at extreme ends of the mirror, the incident ray will bounce back to 20 cm mark from the upper end of mirror and to 50cm mark from lower end of the mirror as the observer can see metre ruler from 20 cm to 50 cm mark.

16. (C)



Since convex lens are converging lens, the refracted rays will converge, also, rays coming from infinity (parallel rays) converge at focus (a point of principal axis)

17. (A)

To button paper has to reach sufficiently high temperature. Since water on the other end keeps on conducting heat, so that burning temperature is not reached.

So correct reason for paper not burning is (i) and (ii)

18. (C)

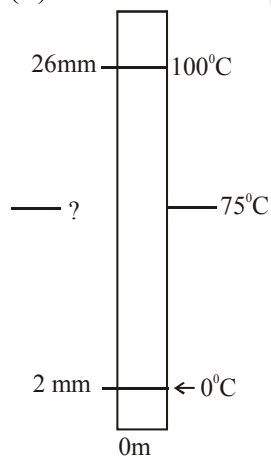
From the free diagram, column x contains media-playing and communication devices, y contains devices used for cooking, so from the option 'C' satisfies the conditions

x → walkman

y → table lamp

z → electric kettle

19. (B)



Since 00C to 100°C is divided in  $(26 - 2)mm$   
 $= 24mm$

so 1°C corresponds to  $= \frac{24}{100}mm$

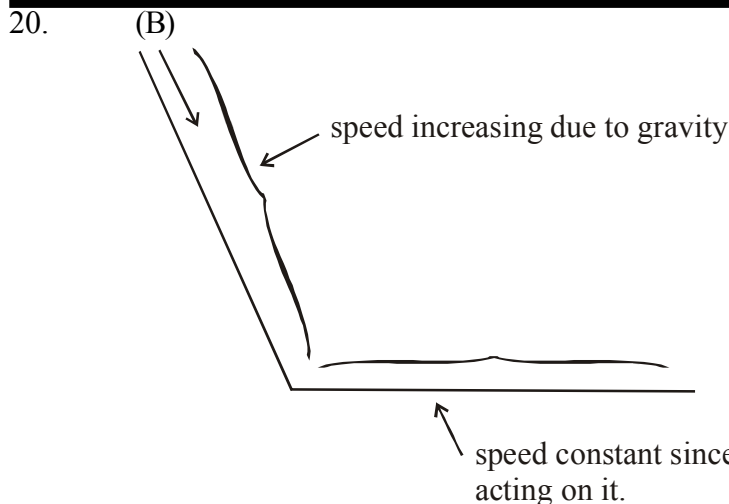
75°C corresponds to

$$= 75 \times \left( \frac{24}{100} \right) = 18mm$$

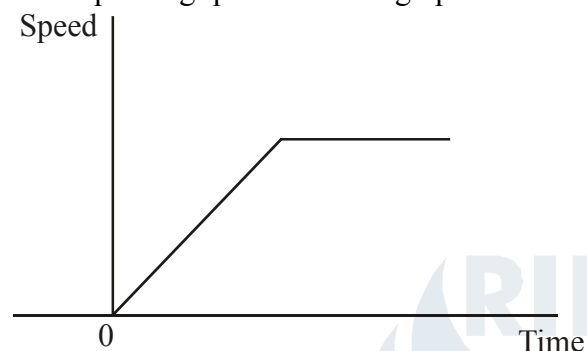
$$= 3 \times \frac{24}{4} + 2$$

$$= 18 + 2$$

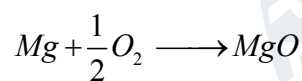
$$= 20mm$$



Corresponding speed is vs time graph will be



21. (A)



Hence I, III, IV is correct.

22. (C)

I<sup>st</sup> process is melting – Physical

II<sup>nd</sup> process is vaporisation – Physical

III<sup>rd</sup> process is combustion – Chemical

23. (C)

Vinegar is an acid. Acids are miscible in water.

24. (C)

R has the more contact with water and water is the only cause of rusting of iron.

25. (B)

To separate k and m is very difficult to separate from water because it dissolves in water and the substance which doesn't dissolve can be separated easily.

26. (A)

I, II and IV only incorrect.

I – is incorrect because Baking soda is basic salt.

II – water extract of spinach is acidic. Therefore, blue litmus turns to red. II is incorrect.

III – True

IV – Lime water is basic in nature its pH is 12.3. IV is incorrect.

27. (D)  
p = zinc, q = hydrochloric acid, r = hydrogen,  
Hydrogen burns with popup sound.
28. (C)  
Reipening of a fruit is a desirable, non-periodic and slow chemical change.
29. (B)  
Self explanatory
30. (A)  
According to the results of tests observed.
31. (B)  
Y = Warm blooded, 4 chambered heart, posseses hollow bones and air sacs – class anes  
Z = Cold blooded, 3<sup>1/2</sup> chambered heart, class- Reptiles  
X = 2 chambered heart, cold blooded oxaniumous.
32. (A)  
Above the optimum temperature, the rate begins to decrease, as enzymes are denatured until its stops.
33. (C)  
T – Bryophyllum is a means of vegetative propagation.  
S – Nepenthes also called as pitcher plant is modified to catch insect.  
R – Opuntia is modified to reduce loss of water.  
Q – Aloe vera is modified to store water and mucilage.  
P – Gloriosa, modified to give support.
34. (\*)
35. (C)  
Paramaccum has still hair like structure called cilia all over its body, which are used for ingestion.  
Hydra has a number of tentacles around its mouth, that entangle small aquatic animals and kills them with their stringing cells.
36. (B)  
Synthetic yarn gives smell like plastic on burning.
37. (B)  
R should be taken in large quantities by patient suffering from goitre, which is caused by deficiency of jodine.
38. Reduction in amount of P with time is synchoronised with nutrient enrichment of ground soil.(True)
39. (\*)
40. (D)  
X – is Red Blood corpuscles, which is enucleated biconcave and contains red pigment haemoglobin and its Hb count decreases in Aneamia.  
Y – is white blood cells, shows amoeboid movement and fight against infection.  
Z – is platelets which forms lots and prevent blood loss.  
W – plasma in which there is 90 – 92% water, enzymes, proteins, homogenous etc.

41. (B)  
P – Begonia, Q – Strawberry, R – Spirogyra, S – Marchantia
42. (C)  
Flowers of plat X and Y need to produce odour and nectar for completion of processes P and Q if they are rose species.
43. (B)  
In areas experiencing extremes of temperature, contraction and relaxation of rocks aids in Z.
44. (C)  
The lion tailed macaque is a monkey which eat fruits and not insects.
45. (B)  
During inhalation, volume in thoracic cavity increases, ribs move upward and outward from x to y, and y to z ribs move downward and inward (during exhalation).

46. (B)

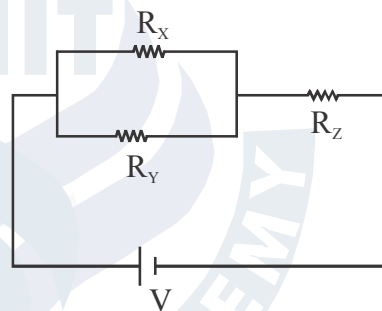
$$\text{Equivalent resistance} = \frac{RR}{R+R} + R$$

$$= \frac{R}{2} + R$$

$$= \frac{3R}{2}$$

$$\text{Net current flowing} = \frac{V}{R_{net}}$$

$$= \frac{2V}{3R} \text{ A}$$



$$\text{Current flowing through } R_2 = \frac{2V}{3R}$$

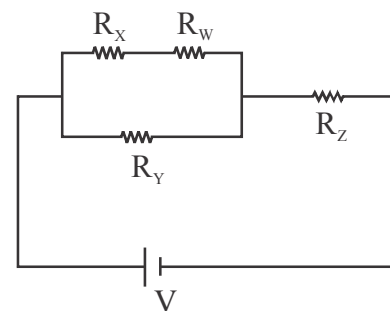
$$\text{Current flowing through } R_X \text{ and } R_Y = \frac{1V}{3R}, \frac{1V}{3R} \quad (\text{equal division})$$

Case II : On adding new bulb in series with X

$$R_{net} = \frac{2R}{3} + R = \frac{5}{3}R$$

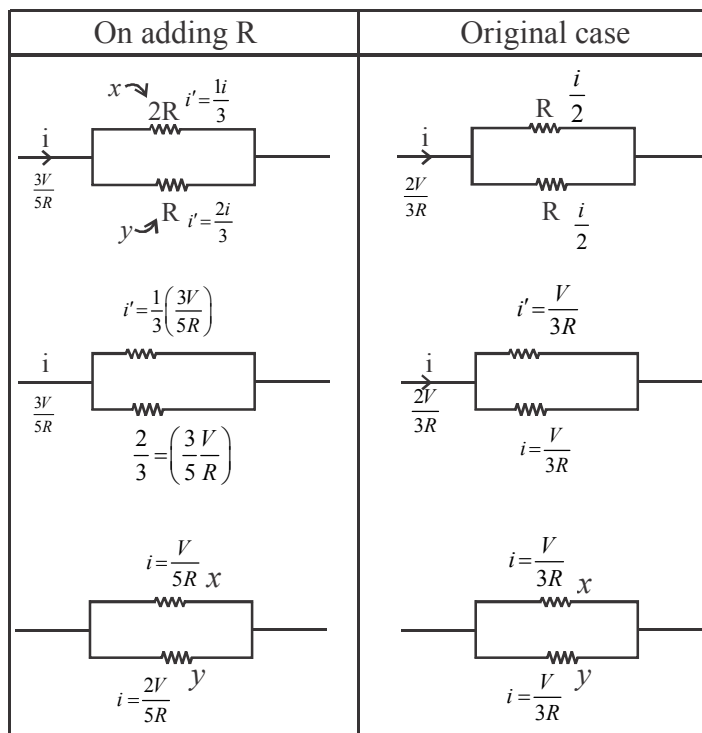
$$\text{Current through circuit} = \frac{V}{R_{net}}$$

$$= \frac{3V}{5R}$$



Since  $\frac{3}{5} < \frac{2}{3}$ , new current in circuit is reduced.

As a result 'Z' will glow dimmer



So current through X is reduced on adding 'R'.  
 But current through Y is increased on adding R in series with X.  
 So, Bulb Y → Brighter, X → dimmer, Z → dimmer

47. (B)  
 (a, b) - acidic      (d, e) – basic      (c, f) – neutral
48. (B)  
 Q – Stomoch, R – Pancreas, S – Small intestine, P – gall bladder
49. (A)  
 Bar such should be replaced by Digester and liquid should be replaced by solid.
50. (A)  
 There are 8 food chains in the given food web.