

LOGICAL REASONING

1. Arrange the words given below in a meaningful sequence.

1. Police 2. Punishment 3. Crime
4. Judge 5. Judgement

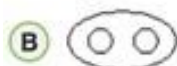
(A) 3, 1, 2, 4, 5

(B) 1, 2, 4, 3, 5

(C) 5, 4, 3, 2, 1

(D) 3, 1, 4, 5, 2

2. Which of the following diagrams indicates the best relation between Women, Mothers and Engineers ?



3. Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle." How is the boy related to the girl?

(A) Brother

(B) Nephew

(C) Uncle

(D) Son-in-law

4. Choose the alternative which is closely resembles the mirror image of the given combination.

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(1) 1965 INDOPAK

(3) 1965 INDOPAK

(2) 588 10DNI KAP

(4) 1965 INDOPAK

(A) 1

(B) 2

(C) 3

(D) 4

5. If South-East becomes North, North-East becomes West and so on. What will West become?

(A) North-East

(B) North-West

(C) South-East

(D) South-West

SCIENCE

6. Which of the following is not a fundamental physical quantity?

- a) Mass b) Length c) Time d) Speed

7. The SI unit of density is

- a) $\text{kg}\cdot\text{m}^{-3}$ b) $\text{g}\cdot\text{cm}^{-3}$ c) $\text{kg}\cdot\text{m}^{-2}$ d) $\text{N}\cdot\text{m}^{-3}$

8. Convert 5 km into metres.

- a) 5×10^2 m b) 5×10^3 m
c) 5×10^4 m d) 5×10^5 m

9. Motion along a straight line with equal distances covered in equal intervals of time is called

- a) Non-uniform motion
b) Accelerated motion
c) Uniform motion
d) Periodic motion

10. A car travels 150 km in 3 h. Its average speed is

- a) 30 km/h b) 40 km/h
c) 50 km/h d) 60 km/h

11. I start from rest, speed up, then slow down to stop again—and repeat forever. What am I?

- a) Car on highway
b) Stone in free fall
c) Swing of a pendulum
d) Runner on track

12. Which one is correct?

- a) Displacement can be greater than distance.
- b) Distance can be negative.
- c) Displacement has direction.
- d) Speed has direction.

13. The process of sending back the light ray which falls on the surface of an object is called

- a) Scattering
- b) Reflection
- c) Refraction
- d) None of these

14. Light is a form of

- a) Energy
- b) Power
- c) Heat
- d) Temperature

15. The pitch of a sound is determined by its

- a) Amplitude
- b) Frequency
- c) Speed
- d) Wavelength

16. The repetition of sound produced by reflection from a surface is called

- a) Reverberation
- b) Resonance
- c) Refraction
- d) Echo

17. The handles of cooking vessels are covered with plastic or wood because they are

- a) Customary
- b) Attractive
- c) Good conductors of heat
- d) Bad conductors of heat

18. Which of the following is a conductor of electricity?

- a) Plastic
- b) Glass
- c) Copper
- d) Wood

19. Which device converts electrical energy into mechanical energy?

- a) Electric heater
- b) Motor
- c) Bulb
- d) Fan

20. Which of the following is not a magnetic material?

- a) Iron
- b) Nickel
- c) Aluminium
- d) Cobalt

21. Water droplets form on the outer surface of a glass filled with-ice cold water.

- a) Physical change
- b) Chemical change
- c) Both
- d) None

22. Raw rice turns soft and fluffy after being cooked.

- a) Physical change
- b) Chemical change
- c) Both
- d) None

23. Which particle in an atom has a positive charge?

- a) Electron
- b) Proton
- c) Neutron
- d) Photon

24. Isotopes of an element differ in their

- a) Atomic number
- b) Mass number
- c) Number of protons
- d) Chemical properties

25. Which of these is a common acid?

- a) Sodium hydroxide
- b) Hydrochloric acid
- c) Calcium carbonate
- d) Ammonia

26. The pH of a neutral solution is

- a) 0 b) 7 c) 14 d) 1

27. When an acid reacts with a base, the products are salt and

- a) Water b) Hydrogen gas
c) Carbon dioxide d) Oxygen

28. The taste of a base is

- a) Sour b) Bitter c) Sweet d) Salty

29. How many of the following are greenhouse gases?

- 1) Carbon dioxide
2) Methane
3) Nitrogen
4) Water vapour

- a) 1 b) 2 c) 3 d) 4

30. Match the gases in Column I with their approximate percentages in Column II, and choose the correct matching set.

Column I:

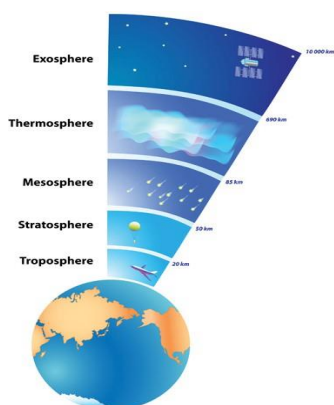
1. Nitrogen
2. Oxygen
3. Argon
4. Carbon dioxide

Column II:

- A. 78%
B. 21%
C. 0.93%
D. 0.04%

- a) 1-A, 2-B, 3-D, 4-C
b) 1-A, 2-B, 3-C, 4-D
c) 1-B, 2-A, 3-C, 4-D
d) 1-C, 2-B, 3-A, 4-D

31. Refer to the diagram of Earth's atmospheric layers. In which layer do most weather phenomena occur?



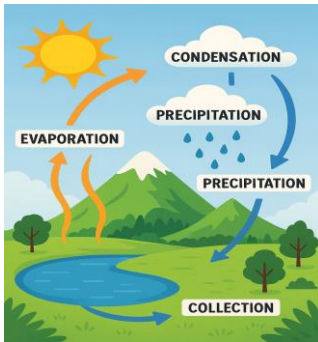
- a) Troposphere b) Stratosphere
c) Mesosphere d) Thermosphere

32. How many of the following statements about air are correct?

- 1) Air is a mixture of gases.
2) Air has the same composition everywhere.
3) Air exerts pressure.
4) Air is a pure substance.

- a) 1 b) 2 c) 3 d) 4

33. In the water-cycle diagram below, process B is shown as water vapour cooling and turning into droplets in the atmosphere. Which process is B?



- a) Evaporation b) Condensation
c) Precipitation d) Collection

34. How many of the following are true states of water?

- 1) Ice (solid)
- 2) Water (liquid)
- 3) Steam (gas)
- 4) Plasma

- a) 1 b) 2 c) 3 d) 4

35. Match the water-cycle processes in Column I with their descriptions in Column II.

Column I:

Column II:

- | | |
|------------------|-----------------------------------|
| 1. Evaporation | A. Liquid water turns into vapour |
| 2. Condensation | B. Vapour turns into droplets |
| 3. Precipitation | C. Water falls as rain/snow |
| 4. Collection | D. Water gathers in oceans/rivers |

- a) 1-A, 2-B, 3-C, 4-D
b) 1-B, 2-A, 3-D, 4-C
c) 1-A, 2-C, 3-B, 4-D
d) 1-D, 2-B, 3-C, 4-A

36. How many of the following statements about the water cycle are correct?

- 1) Evaporation occurs only from oceans.
- 2) Condensation forms clouds.
- 3) Precipitation returns water to land.
- 4) Transpiration is evaporation from plants.

- a) 1 b) 2 c) 3 d) 4

37. Match the conservation methods in Column I with their benefits in Column II.

Column I:

Column II:

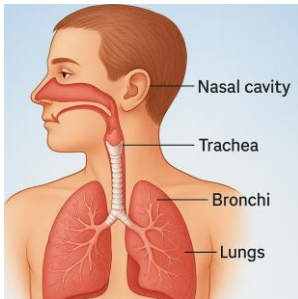
- | | |
|-------------------------|--|
| 1. Drip irrigation | A. Reduces evaporation loss |
| 2. Rainwater harvesting | B. Increases groundwater recharge |
| 3. Afforestation | C. Improves soil moisture retention |
| 4. Recycling wastewater | D. Lowers demand on fresh water supply |

- a) 1-A, 2-B, 3-C, 4-D
b) 1-B, 2-A, 3-D, 4-C
c) 1-C, 2-D, 3-B, 4-A
d) 1-D, 2-C, 3-A, 4-B

38. Which of the following is the correct equation for aerobic respiration?

- a. $C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O + \text{Energy}$
- b. $C_6H_{12}O_6 + O_2 \rightarrow C_6H_{12}O_6 + \text{Energy}$
- c. $C_6H_{12}O_6 + CO_2 \rightarrow O_2 + H_2O + \text{Energy}$
- d. $C_6H_{12}O_6 \rightarrow CO_2 + O_2 + \text{Energy}$

39. Refer to the diagram of the human respiratory system. Which part is responsible for the exchange of gases?



- a. Trachea
- b. Lungs
- c. Bronchi
- d. Nasal cavity

a) a b) b c) c d) d

40. How many of the following statements about respiration are correct?

- 1) Respiration is the process of breaking down glucose.
- 2) Oxygen is used in anaerobic respiration.
- 3) Aerobic respiration produces more energy than anaerobic respiration.
- 4) Respiration occurs in all living cells.

a) 1 b) 2 c) 3 d) 4

41. Match the following:

Column I:

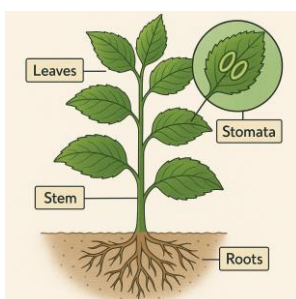
- 1. Oxygen
- 2. Carbon dioxide
- 3. Energy

Column II:

- A. By-product of respiration
- B. Necessary for aerobic respiration
- C. Released during respiration

- a) 1-B, 2-A, 3-C
- b) 1-C, 2-B, 3-A
- c) 1-A, 2-C, 3-B
- d) 1-B, 2-C, 3-A

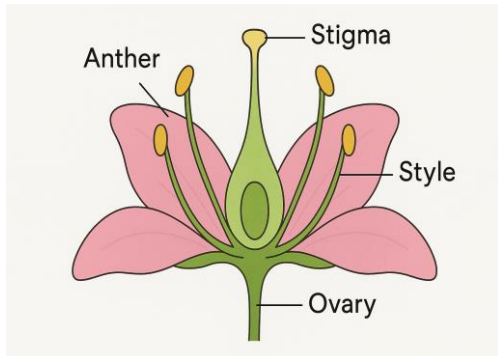
42. Refer to the diagram showing the respiratory process in a plant. Which part of the plant help the exchange of gases?



- a. Roots
- b. Stomata
- c. Leaves
- d. Stem

a) a b) b c) c d) d

43. Refer to the diagram of a flower. Which part is responsible for producing pollen?



- a. Stigma
- b. Anther
- c. Ovary
- d. Style

a) a b) b c) c d) d

44. Match the following:

Column I:

- 1. Pollination
- 2. Fertilization
- 3. Germination

- a) 1-B, 2-A, 3-C
- b) 1-A, 2-B, 3-C
- c) 1-C, 2-A, 3-B
- d) 1-B, 2-C, 3-A

Column II:

- A. Fusion of male and female gametes
- B. Transfer of pollen from anther to stigma
- C. Growth of seed into a new plant

45. Match the following:

Column I:

Column II:

- | | |
|-----------|--------------------------|
| 1. Stigma | A. Produces pollen |
| 2. Anther | B. Receives pollen |
| 3. Ovule | C. Contains the egg cell |

- a) 1-B, 2-A, 3-C
b) 1-A, 2-B, 3-C
c) 1-C, 2-B, 3-A
d) 1-B, 2-C, 3-A

46. What causes the wind to blow?

- a. Difference in atmospheric pressure
b. Earth's magnetic field
c. Temperature of the land
d. Ocean waves

47. What is the minimum wind speed for a storm to be classified as a cyclone?

- | | |
|-------------|-------------|
| a. 30 km/h | b) 60 km/h |
| c) 120 km/h | d) 200 km/h |

48. What is the main difference between a cyclone and a tornado?

- a. Cyclones form over land, tornadoes over the sea
b. Cyclones are larger, tornadoes are smaller
c. Tornadoes are tropical, cyclones are temperate
d. Tornadoes form in the ocean, cyclones form on land

49. Match the following types of storms with their features:

Column A

Column B

- | | |
|-----------------|--|
| 1. Cyclone | a) Small, rotating column of air with high wind speed |
| 2. Tornado | b) A large, rotating storm with a calm center called the "eye" |
| 3. Thunderstorm | c) A storm with heavy rain, thunder, lightning, and strong winds |
| 4. Hurricane | d) A tropical storm with wind speeds above 120 km/h |
| 5. Typhoon | e) A type of cyclone found in the Pacific Ocean |

a) 1-a, 2-b, 3-c, 4-d, 5-e b) 1-b, 2-a, 3-c, 4-d, 5-e

c) 1-b, 2-a, 3-c, 4-e, 5-d d) 1-b, 2-c, 3-a, 4-d, 5-e

50. During a demo, a candle is lit. The wax melts and the wick burns with smoke.
Which best describes the overall process?

- a. Only a physical change occurs b) Only a chemical change occurs
c. A physical change followed by a chemical change
d. Both physical and chemical changes occur simultaneously

Answer Key

1.a	2.a	3.a	4.d	5.c	6.d	7.a	8.b	9.c	10.c
11.c	12.c	13.b	14.a	15.b	16.d	17.d	18.c	19.b	20.c
21.a	22.b	23.b	24.b	25.b	26.b	27.a	28.b	29.c	30.b
31.b	32.a	33.b	34.c	35.a	36.c	37.a	38.a	39.b	40.c
41.a	42.b	43.b	44.a	45.a	46.a	47.c	48.b	49.b	50.d