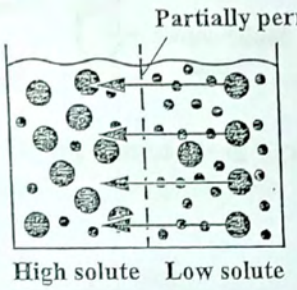
1. Which of the following changes of states of matter describes sublimation?

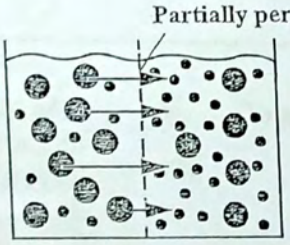
(A) Solid → gas
(B) Liquid → gas
(C) Gas → liquid → solid
(D) Solid → liquid → gas

2. Which of the following diagrams MOST likely shows the process of osmosis?

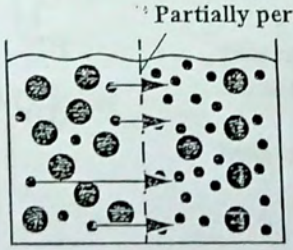
(A)



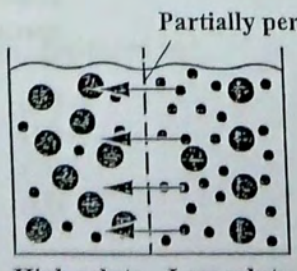
(B)



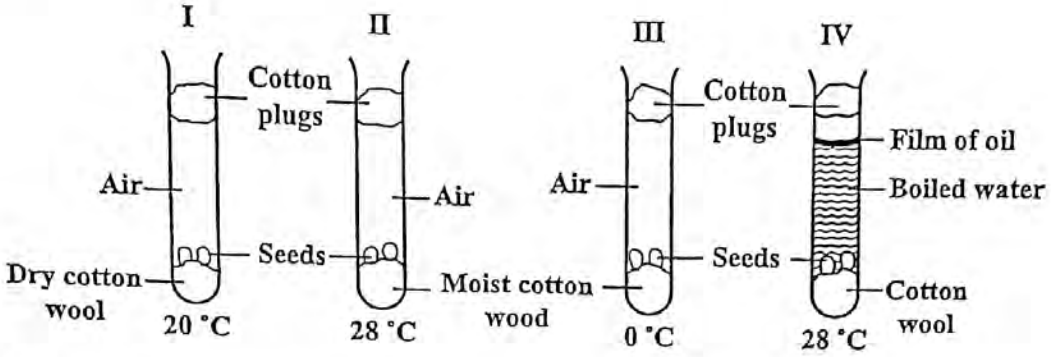
(C)



(D)



Item 3 refers to the following diagrams which display seeds under different conditions in four test tubes plugged with cotton wool.



3. In which test tube is germination MOST likely to take place?

(A) I
(B) II
(C) III
(D) IV

Items 4–5 refer to the following parts of a flower.

(A) Ovule
(B) Ovary
(C) Anther
(D) Filament

In answering Items 4–5, each option may be used once, more than once or not at all.

4. Which part of the flower forms the seed after fertilization?

5. Which structure is the site where male gametes are produced?

6. The MOST important reason for ensuring that a baby is fed its mother's milk produced during the first 3–4 days of lactation is that it

(A) does not cost anything
(B) is at the correct temperature for the baby
(C) reduces the risk of breast and ovarian cancer in the mother
(D) boosts the baby's immune system and gives protection against infection

7. Which of the following methods of birth control is MOST likely to prevent the spread of sexually transmitted infections?

(A) Barrier
(B) Natural
(C) Surgical
(D) Hormonal

8. Which of the following word equations represents the process of photosynthesis?

(A) Carbon dioxide + Water $\xrightarrow{\text{Energy}}$ Glucose + Oxygen

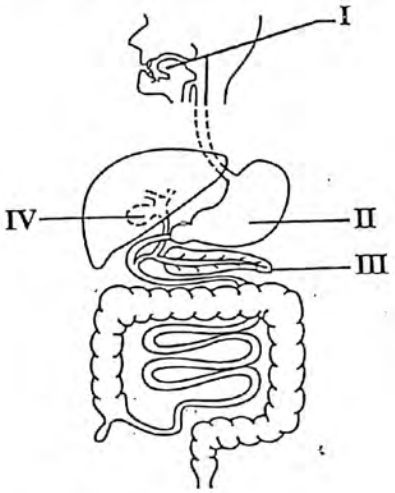
(B) Carbon dioxide + Water $\xrightarrow{\text{Energy}}$ Sucrose + Oxygen

(C) Alcohol + Oxygen $\longrightarrow$ Carbon dioxide + Water + Energy

(D) Oxygen + Glucose $\longrightarrow$ Carbon dioxide + Water + Energy

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Items 9–10 refer to the following diagram of the human digestive tract.



9. The organ labelled IV is the

(A) liver
(B) stomach
(C) pancreas
(D) gall bladder

10. Hydrochloric acid is produced in

(A) I
(B) II
(C) III
(D) IV

11. Which of the following types of drugs are used to get rid of water from the human body?

(A) Stimulants
(B) Hormones
(C) Sedatives
(D) Diuretics

12. The part of the heart that separates the left side from the right is the

(A) valve
(B) tendon
(C) septum
(D) pacemaker

13. The bone in the upper arm is called the

(A) ulna
(B) tibia
(C) radius
(D) humerus

14. A hinge joint is found at the

(A) knee
(B) neck
(C) skull
(D) shoulder

15. Antibodies are important in the human body because they

(A) control hormones
(B) protect against diseases
(C) help make red blood cells
(D) regulate blood glucose levels

16. Which of the following are common features of respiratory surfaces?

I. Moist
II. Small surface area
III. Well supplied with blood vessels

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

17. Which of the following would NOT be considered a significant source of air pollution?

(A) Oil spill
(B) Wildfire
(C) Volcanic eruption
(D) Extensive use of cars

18. Which of the following statements about respiration is true?

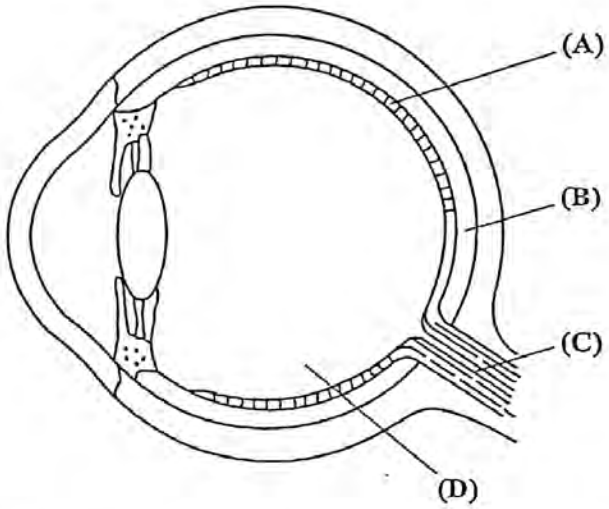
(A) Anaerobic respiration produces more energy than aerobic respiration.
(B) Anaerobic respiration requires oxygen while aerobic respiration does not require oxygen.
(C) Aerobic respiration requires oxygen while anaerobic respiration does not require oxygen.
(D) Aerobic respiration produces oxygen while anaerobic respiration produces carbon dioxide.

19. Which of the following processes are associated with excretion by the kidneys?

I. Filtration
II. Evaporation
III. Reabsorption

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

Item 20 refers to the following diagram of the eye.



20. Which structure transmits impulses to the brain?

21. The endocrine system produces

(A) enzymes
(B) impulses
(C) hormones
(D) neurotransmitters

22. The three small bones found in the middle ear of a human being are called the

(A) drums
(B) cochlea
(C) follicles
(D) ossicles

23. Which part of the eye allows a person to focus on both near and distant objects?

(A) Iris
(B) Lens
(C) Retina
(D) Cornea

24. To practise good personal hygiene, a person should wash his or her hands after

I. using the toilet
II. putting out the garbage
III. cutting up meat to cook

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

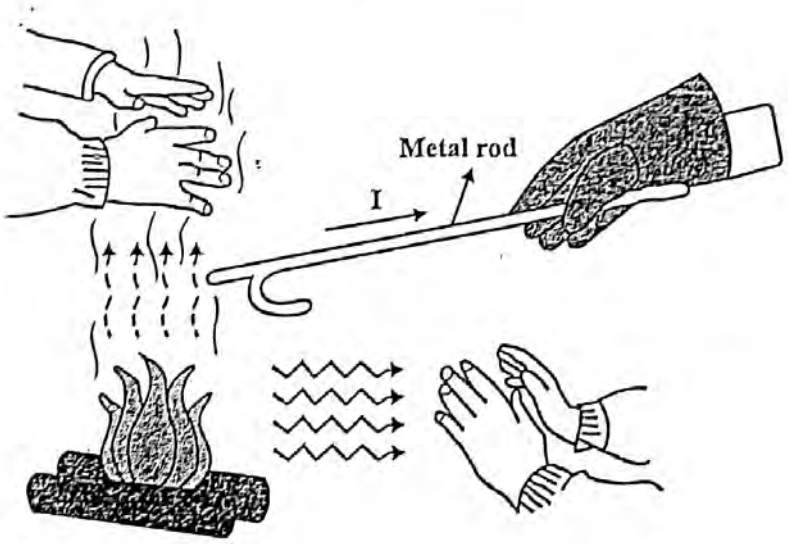
25. Which of the following is a parasite?

(A) Rat
(B) Fly
(C) Tick
(D) Cockroach

26. The type of pest control which involves the use of a predator is called

(A) biological control
(B) mechanical control
(C) chemical control
(D) sanitary control

Item 27 refers to the following picture showing methods of heat transfer.



27. The method of heat transfer at I is

(A) radiation
(B) convection
(C) conduction
(D) evaporation

28. Liquids and gases normally expand when heated and contract when cooled. This principle explains the functioning of a

(A) water pump
(B) vacuum cleaner
(C) tyre pressure gauge
(D) mercury thermometer

Item 29 refers to the following picture of an athlete jumping over a hurdle.



29. What type of energy is the athlete using to jump over the hurdle?

(A) Heat
(B) Sound
(C) Kinetic
(D) Potential

30. Which of the following energy conversions takes place during the process of photosynthesis?

(A) Heat to light
(B) Light to kinetic
(C) Chemical to heat
(D) Light to chemical

31. Which of the following is NOT a conductor of electricity?

(A) Iron
(B) Carbon
(C) Copper
(D) Plastic

32. A fire extinguisher that contains water should NOT be used on

I. a bush fire
II. a chemical fire
III. an electrical fire

(A) III only
(B) I and III only
(C) II and III only
(D) I, II and III

Items 33–34 refer to the following safety equipment.

(A) Ear protector
(B) Goggles
(C) Safety clothing
(D) Respirator

In answering Items 33–34, each option may be used once, more than once or not at all.

33. Which equipment makes a person working on the side of the road visible to motorists?

34. Which equipment protects a person from toxic fumes?

35. Which of the following types of machines are first-class levers?

(A) Claw hammer, see-saw, tweezers
(B) Scissors, see-saw, wheelbarrow
(C) Claw hammer, crowbar, see-saw
(D) Scissors, tweezers, wheelbarrow

GO ON TO THE NEXT PAGE

36. Which of the following formulae is used to calculate the mechanical advantage (MA) of a machine?

(A) $MA = \frac{\text{Effort}}{\text{Load}}$

(B) $MA = \frac{\text{Load}}{\text{Effort}}$

(C) $MA = \text{Effort} - \text{Load}$

(D) $MA = \text{Effort} \times \text{Load}$

37. Which of the following are properties of aluminium alloys that make them suitable for the manufacture of aircraft and boats?

I. Light
II. Strong
III. Expensive

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

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38. The word equation that describes the reaction between aluminium and hydrochloric acid is

(A) Aluminium + Hydrochloric acid → Aluminium chloride + Hydrogen
(B) Aluminium + Hydrochloric acid → Aluminium chloride + Water
(C) Aluminium + Hydrochloric acid → Aluminium hydroxide + Hydrogen
(D) Aluminium + Hydrochloric acid → Aluminium hydroxide + Chlorine

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39. The rusting of iron is an example of

(A) reduction
(B) oxidation
(C) precipitation
(D) neutralization

40. Which of the following substances MUST be present for rusting to occur?

I. Oxygen
II. Water
III. Oil

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

41. Which of the following forms a suspension in water?

(A) Soil
(B) Salt
(C) Sugar
(D) Oxygen

42. Which of the following chemicals remove nail polish?

(A) Borax
(B) Acetone
(C) Washing soda
(D) Methylated spirit

43. The following data were obtained in an experiment to investigate the best soil pH for different crops. Which crop grows best in neutral soil?

Crop	pH Values of Soil for Best Growth
(A)	4.0–6.0
(B)	6.0–8.0
(C)	8.0–10.0
(D)	10.0–12.0

44. Hard water is water that

(A) is frozen
(B) contains a high concentration of chemicals
(C) forms lather easily with soap
(D) does not form lather easily with soap

45. How many planets are in our solar system?

(A) 8
(B) 10
(C) millions
(D) billions

46. Which of the following is the hottest planet?

(A) Mars
(B) Earth
(C) Venus
(D) Mercury

47. The eye of a hurricane is the

(A) centre of the hurricane
(B) path along which the hurricane is moving
(C) region in which the hurricane is located
(D) front where the winds reach the speed of a standard hurricane

48. Decayed organic matter in soil is called

(A) sand
(B) humus
(C) sediment
(D) limestone

49. Which of the following practices prevent soil erosion?

I. Planting along the contour
II. Building terraces
III. Keeping ground cover

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

50. A non-moving boundary between two air masses is called

(A) a cold front
(B) a warm front
(C) a stationary front
(D) an occluded front

51. Which of the following tides occur when there is a full moon?

(A) Low tide
(B) High tide
(C) Neap tide
(D) Spring tide



52. Which of the following processes results in water moving from the ocean to the atmosphere?

(A) Respiration
(B) Precipitation
(C) Evaporation
(D) Condensation

53. The type of fishing that is MOST damaging to the aquatic environment is

(A) trawling
(B) long lining
(C) spear fishing
(D) using fish pots

54. Which unique property of water allows small insects and spiders to be able to walk or glide across its surface?

(A) High density
(B) Surface tension
(C) Boiling point of 100 °C
(D) High specific heat capacity

55. Hazards can arise while scuba diving because of

I. a lack of oxygen
II. high pressure
III. too rapid an ascent to the surface

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

56. Which of the following is NOT an alternative source of energy?

(A) Solar
(B) Wind
(C) Candle
(D) Wave

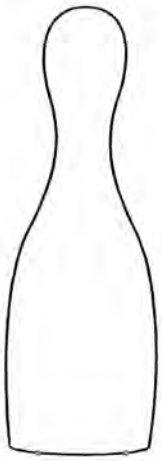
57. The type of energy contained in fossil fuels is

(A) solar
(B) kinetic
(C) chemical
(D) electrical

58. Which of the following sources of energy is nonrenewable?

(A) Coal
(B) Wind
(C) Solar
(D) Wave

Item 59 refers to the following diagram.

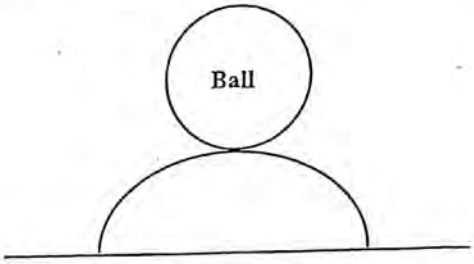


59. Which of the following types of equilibrium is shown in the diagram?

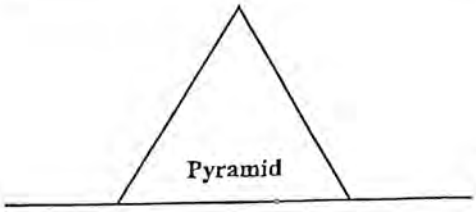
(A) Stable
(B) Neutral
(C) Unstable
(D) Chemical

60. Which of the following diagrams represents an object in stable equilibrium?

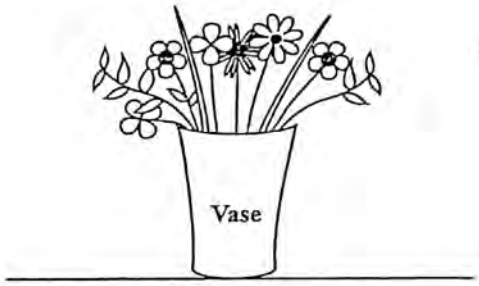
(A)



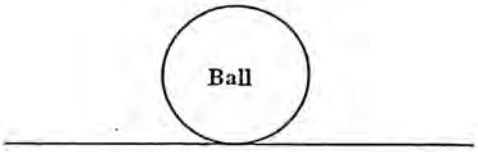
(B)



(C)



(D)



END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.