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OLYMPIAD EXPLORER



Workbook for
**Nationwide Interactive SCIENCE Olympiad & Other
National/International Olympiads/Talent Search Exams.**

Also useful for Nationwide Biotechnology Olympiad (NBTO)

Based on CBSE, ICSE, GCSE, State Board Syllabus & NCF (NCERT)

100's of Q's with answers

- Chapterwise Practice Q's
- Revision Q's
- Sample Paper



Class

8

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EduHeal Foundation conducts 5 Olympiads annually reaching out to 3,500 + Schools
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SYLLABUS GUIDELINES

Based on CBSE, ICSE & GCSE Syllabus & NCF guidelines devised by NCERT

Food

Crop production

Crop production : How are different food crops produced?
What are the various foods we get from animal sources?

Micro-organism

What living organisms do we see under a microscope in a drop of water? What helps make curd? How does food go bad? How do we preserve food?

2. Materials

Materials in daily life

Are some of our clothes synthetic? How are they made? Where do the raw materials come from?

Do we use other materials that are synthetic?

Do we use cloth (fabric) for purposes other than making clothes to wear? What kind of fabric do we see around us?

What are they used for?

Different kinds of materials and their reaction.

Can a wire be drawn out of wood?

Do copper or aluminium also rust like iron?

What is the black material inside a pencil?

Why are electrical wires made of aluminium or copper?

How things change/react with one another

What happens to the wax when a candle is burnt? Is it possible to get this wax back?

What happens to kerosene/natural gas when it is burnt?

Which fuel is the best? Why?

3. The World of the Living

Why conserve

What are reserve forests/sanctuaries etc? How do we keep track of our plants and animals?

How do we know that some species are in danger of disappearing?

What would happen if you continuously cut trees?

The cell

What is the internal structure of a plant what will we see if we look under the microscope?

Which cells from our bodies can be easily seen? Are all cells similar?

How babies are formed

How do babies develop inside the mother? Why does our body change when we reach our teens? How is the sex of the child determined? Who looks after the babies in your homes?

Do all animals give birth to young ones?

4. Moving things, People and Ideas

Idea of force

What happens when we push or pull anything?

Class - 8

How can we change the speed, direction of a moving object?

How can we change the shape of an object?

Friction

What makes a ball rolling on the ground slow down?

Pressure

Why are needles made pointed? Why does a balloon burst if too much air is blown into it?

Why does an inverted glass/bottle/pitcher resist being pushed down into water? How can air/liquids exert pressure?

Sound

How do we communicate through sound? How is sound produced? What characterises different sounds?

5. How Things Work

Electric current and circuits

Why do we get a shock when we touch an electric appliance with wet hands?

What happens to a conducting solution when electric current flows through it?

How can we coat an object with a layer of metal?

6. Natural Phenomena

Rain, thunder and lightning

What is lightning? What safety measures should we take against lightning strikes?

Light

What are the differences between the image formed on a new utensil and an old one? Why is there this difference?

When you see your image in the mirror it appears as if the left is on the right why?

Why don't we see images on all surfaces around us?

What makes things visible?

How do we see image of our back in a mirror?

Why do we sometimes see colours on oil films on water?

What is inside our eye that enables us to see?

Why are some people unable to see?

Night sky

What do we see in the sky at night? How can we identify stars and planets?

Earthquakes

What happens during an earthquake? What can we do to minimise its effects?

7. Natural Resources

Man's intervention in phenomena of nature

What do we do with wood?

What if we had no wood?

What will happen if we go on cutting trees / grass without limit?

What do we do with coal and petroleum?

Can we create coal and petroleum artificially?

Pollution of air and water

What are the various activities by human beings that make air impure?

Does clear, transparent water indicate purity?



QUESTIONS FROM PREVIOUS CLASS

- Q.1.** The autotrophic organisms contain _____ pigment.
(a) methylene blue (b) chlorophyll
(c) phenolphthalein (d) carbon black
- Q.2.** Oxygen released during photosynthesis comes from _____.
(a) water (b) carbon dioxide
(c) chloroplast (d) sunlight
- Q.3.** Which organism does not show parasitic mode of nutrition ?
(a) cuscuta (b) mistletoe
(c) moulds (d) none of these
- Q.4.** Match the given terms in list I with their definitions in list II:
- | List I | List II |
|-----------------|--|
| I. Nutrition | A. organism deriving its food from dead and decaying plants and animals. |
| II. Parasite | B. association of two different organisms in which both are mutually benefitted. |
| III. Saprophyte | C. process of obtaining and utilising food. |
| IV. Symbiosis | D. organism that derives its food from the living body of another organism. |
- (a) I-B, II-C, III-D, IV-A (b) I-C, II-D, III-A, IV-B
(c) I-D, II-A, III-B, IV-C (d) I-A, II-B, III-C, IV-D
- Q.5.** Which of the following season does not suit for fungi growth?
(a) cold weather (b) rainy season
(c) hot and humid weather (d) none of these
- Q.6.** The process of chewing is called
(a) digestion (b) assimilation
(c) mastication (d) none of these
- Q.7.** In which of the following digestion does not take place?
(a) oesophagus (b) stomach
(c) small intestine (d) none of these
- Q.8.** The true stomach of a ruminant is
(a) omasum (b) obomasum
(c) reticulum (d) none of these

- Q.9.** The digestion process in human being is
 (a) extracellular (b) intracellular
 (c) multicellular (d) none of these
- Q.10.** Which of the following is not a ruminant?
 (a) sheep (b) deer
 (c) cow (d) hen
- Q.11.** In ruminants, digestion of food starts in
 (a) rumen (b) omasum
 (c) reticulum (d) obomasum
- Q.12.** Which of the following is not meant for ingestion?
 (a) plasmodium (b) tentacles
 (c) tongue (d) dendrite
- Q.13.** Flax is a kind of
 (a) natural fibre (b) synthetic fibre
 (c) plant (d) none of these
- Q.14.** Wool burns with smell of burning hairs
 (a) as it is obtained from hairs of sheep and goat
 (b) because it is a natural fibre
 (c) because it is a synthetic fibre
 (d) none of these
- Q.15.** Complete the corelation: Silk worm : Cocoon, Wool:
 (a) hair of rabbit. (b) cotton plant.
 (c) fleece of sheep. (d) jute of hemp.
- Q.16.** Which of the following is made from coconut fibres?
 (a) sweaters. (b) shoes.
 (c) blankets. (d) mattresses
- Q.17.** Which of the following is not a stage?
 (a) sericulture. (b) larvae
 (c) pupa (d) zygote
- Q.18.** Cocoon is -
 (a) The fibre cover spun by the silk larva around its body on changing into pupa state.
 (b) The stage of larva.
 (c) Both 'a' and 'b'. (d) None of these.
- Q.19.** Which is the right order?
 (a) caterpillar → butterfly → egg → pupa
 (b) egg → caterpillar → pupa → butterfly
 (c) pup → caterpillar → egg → butterfly
 (d) none of these

- Q.20.** What is "metamorphosis"?
 (a) the process of a butterfly's change from egg to caterpillar to pupa to adult butterfly
 (b) the change from caterpillar to pupa
 (c) the butterfly's "tongue" that helps to suck nectar
 (d) a means of protection from predators
- Q.21.** In which of the following will heat reach the food by radiation?
 (a) grilling (b) roasting
 (c) frying (d) freezing
- Q.22.** Which of the following can travel through a vacuum?
 (a) conduction (b) radiation
 (c) natural convection (d) none of these
- Q.23.** Metal handles of pans are often made of bakelite. This is to
 (a) increase heat conduction
 (b) reduce heat emission
 (c) increase heat absorption
 (d) reduce heat conduction
- Q.24.** The earliest thermometer was developed by
 (a) kelvin (b) Galileo
 (c) Fahrenheit (d) none of these
- Q.25.** The number of calories needed to change the temperature of unit mass of any substance by 1°C is
 (a) heat capacity (b) latent heat
 (c) thermal heat (d) specific heat
- Q.26.** When a solid changes into liquid, it is called
 (a) freezing (b) melting
 (c) condensation (d) none of these
- Q.27.** When a liquid changes into gas, it is called
 (a) freezing (b) melting
 (c) condensation (d) vaporisation
- Q.28.** Which of these is corrosive in nature?
 (a) washing soda (b) nitric acid
 (c) common salt (d) none of these
- Q.29.** Which of the following substances is used to disinfect drinking water?
 (a) baking soda (b) chlorine
 (c) tartaric acid (d) none of these
- Q.30.** When an ant bites, _____ is used

- (a) antacid (b) calamine solution
(c) calcium oxide (d) none of these
- Q.31.** Caustic soda is
(a) an acid (b) a base
(c) a salt (d) none of these
- Q.32.** Which acid is used for manufacture of baking powder?
(a) acetic acid (b) tartaric acid
(c) formic acid (d) none of these
- Q.33.** An acid used to preserve food articles is
(a) acetic acid (b) lactic acid
(c) oxalic acid (d) none of these
- Q.34.** Lemon juice contains
(a) acetic acid (b) citric acid
(c) amino acid (d) none of these
- Q.35.** Which acid is found in stomach?
(a) H_3PO_4 (b) H_2SO_4
(c) HCl (d) None of these
- Q.36.** Which of the following will cause a chemical change?
(a) boiling water (b) melting of ice
(c) ripening of fruits (d) none of these
- Q.37.** _____ is a physical change where surface molecules of a liquid escape at any temperature
(a) evaporation (b) condensation
(c) boiling (d) melting
- Q.38.** The substance which undergoes chemical reaction is called _____
(a) product (b) reactant
(c) catalyst (d) none of these
- Q.39.** Respiration is a _____
(a) physical change (b) chemical change
(c) both (d) none of these
- Q.40.** The process of obtaining pure crystals of copper sulphate from copper sulphate solution is known as
(a) fractionation (b) galvanisation
(c) rusting (d) crystallization
- Q.41.** A catalyst _____ a chemical reaction
(a) speeds up (b) speeds down
(c) does not affect (d) none of these

- Q.42.** Coating iron with a thin layer of zinc, to prevent rusting is
(a) galvanization (b) anodizing
(c) crystallization (d) none of these
- Q.43.** Example of chemical properties are
(a) corrosiveness and strength
(b) malleability
(c) melting point and solubility
(d) none of these
- Q.44.** When a new substance is made to undergo a physical change, the sign could be
(a) A change in state (b) A change in odour
(c) A change in colour (d) none of these
- Q.45.** Climate of the north-eastern region is normally
(a) wet (b) dry
(c) moderate (d) none of these
- Q.46.** The colouration through which animals match their environment in colour to escape predator is
(a) camouflage (b) aestivation
(c) hibernation (d) none of these
- Q.47.** White fur of the polar bear is
(a) a good insulation
(b) helps it to camouflage from its prey
(c) both 'a' & 'b'
(d) none of these
- Q.48.** The tropical region has generally hot climate
(a) because of its location around the equator
(b) because of its location around the poles
(c) both 'a' & 'b' (d) none of these
- Q.49.** Rain forests are habitat to many plants and animals as
(a) this region receives plenty of rainfall
(b) as the climatic conditions are highly suitable for supporting life
(c) Both 'a' & 'b' (d) none of these
- Q.50.** Seasonal changes occur because
(a) of green house gases (b) Earth's rotation on its axis
(c) Earth's axis of rotation is tilted at an angle to the normal
(d) distance of earth keep on changing during its revolution round the sun
- Q.51.** Atmosphere Pressure
(a) is smaller at equator (b) is usually greater at sea level

- (c) is usually lesser at sea level
(d) none of these
- Q.52.** Storms that form over warm ocean water and have fast winds are called
(a) tornadoes (b) hurricanes
(c) snow storms (d) none of these
- Q.53.** _____ seasons mostly start in summer season.
(a) storm (b) rainfall
(c) hurricane (d) none of these
- Q.54.** Which continent doesn't ever have hurricanes?
(a) Antarctica (b) Asia
(c) North America (d) none of these
- Q.55.** Cyclone circulate clockwise in
(a) northern hemisphere (b) southern hemisphere
(c) both (d) none of these
- Q.56.** A violent storm shaped like a funnel, formed on land is
(a) tornado (b) earthquake
(c) hurricane (d) volcano
- Q.57.** Which type of soil will allow the water to drain away & lack humus?
(a) clay (b) sand
(c) loam (d) none of these
- Q.58.** The natural level of ground water is called
(a) water layer (b) water bed
(c) water table (d) none of these
- Q.59.** A soil rich in minerals and is porous in nature is
(a) laterite soil (b) mountain soil
(c) black soil (d) none of these
- Q.60.** Vegetable wastes & agricultural wastes are
(a) biodegradable (b) non-biodegradable
(c) both of these (d) none of these
- Q.61.** The carrying away of top soil by natural agents is
(a) soil pollution (b) soil erosion
(c) soil fertility (d) none of these
- Q.62.** Step farming
(a) reduces the speed of rain water
(b) is done for special plants
(c) allows all plants to get an adequate amount of sunlight.
(d) none of these

- Q.63.** The organism which is not gill breather among the following is
(a) amoeba (b) tadpole
(c) fish (d) none of these
- Q.64.** Lungs are situated in the
(a) abdominal (b) buccal cavity
(c) thoracic cavity (d) none of these
- Q.65.** Which of these cannot respire in the absence of oxygen?
(a) fish (b) yeast
(c) frog (d) 'a' & 'c'
- Q.66.** Diffusion in plants can't occur through
(a) lenticels (b) stomata
(c) flower (d) body surface
- Q.67.** In aquatic plants, diffusion of gases occurs through
(a) stomata (b) lenticels
(c) body surface (d) none of these
- Q.68.** The kidney shaped cells surrounding stomata are
(a) guard cells (b) lenticels
(c) epidermal cells (d) none of these
- Q.69.** During respiration
(a) heat is produced (b) light is produced
(c) sound is produced (d) none of these
- Q.70.** Which mode of respiration produces more energy
(a) anaerobic respiration (b) aerobic respiration
(c) both produce equal energy
(d) none of these
- Q.71.** Blood does not clot in a person suffering from
(a) leukaemia (b) anaemia
(c) haemophilia (d) none of these
- Q.72.** Transpiration occurs through
(a) stem (b) roots
(c) stomata (d) none of these
- Q.73.** Water within the plant body
(a) prevents plant from drooping
(b) is used in photosynthesis
(c) both 'a' & 'b'
(d) none of these
- Q.74.** Which is incorrect about circulatory system
(a) transports food & oxygen
(b) provides energy

- (c) helps in blood clotting
(d) none of these
- Q.75.** How much blood is present in an adult human body
(a) 10 litres (b) 2 litres
(c) 4.5 litres (d) 5.5 litres
- Q.76.** Fate of ovary wall in fruit is
(a) pulp of fruit (b) fruit wall
(c) seed (d) none of these
- Q.77.** Reserve food materials are present in
(a) embryo (b) seed coat
(c) cotyledons (d) none of these
- Q.78.** The fruit has wing like light structures in case of
(a) gokhru (b) madar
(c) acer (d) none of these
- Q.79.** Which out of the following is not a dry fruit?
(a) sun flower (b) coconut
(c) cotton (d) none of these
- Q.80.** A process by which new individuals of the same species are produced by parents is
(a) reproduction (b) division
(c) production (d) none of these
- Q.81.** To prevent tungsten filament from burning, which substance is used
(a) neon (b) helium
(c) argon (d) iron
- Q.82.** Nichrome does not contain
(a) iron (b) aluminium
(c) nickel (d) chromium
- Q.83.** Which is incorrect about fuse?
(a) it is short wire (b) low melting point
(c) low resistance (d) none of these
- Q.84.** Electric bell works on the principle of
(a) electromagnet (b) short circuiting
(c) electricity (d) none of these
- Q.85.** Objects that does not let light pass through it is
(a) wood (b) glass
(c) water (d) none of these
- Q.86.** Objects that allow partial light to pass through them are

- (a) transparent (b) translucent
(c) water (d) none of these
- Q.87.** Which of these is translucent?
(a) air (b) water
(c) wax paper (d) none of these
- Q.88.** Light travels in a
(a) hole (b) curved line
(c) straight line (d) none of these
- Q.89.** The two types of images are _____ & _____
(a) real & virtual (b) erect & real
(c) inverted & real (d) none of these
- Q.90.** Solubility of gases in water
(a) increases with increase in pressures
(b) decreases with decrease in pressures
(c) decreases with increase in pressures
(d) none of these
- Q.91.** When water is heated from 0°C to 50°C,
(a) It expands (b) first contracts then expands
(c) contracts (d) none of these
- Q.92.** What is electrolysis?
(a) process of producing electricity from water
(b) process of passing electricity to decompose to water
(c) process of killing germs by passing electricity
(d) none of these
- Q.93.** Water can exist as
(a) solid (b) liquid
(c) gas (d) all three forms
- Q.94.** The process of removing salt from sea water is called
(a) calcination (b) desalination
(c) evaporation (d) none of these
- Q.95.** _____ is the root formed by the branches of smaller trees in the forest
(a) canopy (b) understorey
(c) shoot (d) none of these
- Q.96.** Variations in the type of trees & plants in the every forest is due to.....
(a) difference in soil only (b) different climatic conditions
(c) difference in rain fall (d) none of these

- Q.97.** Land in forest is
 (a) uneven & covered with many tree
 (b) marshy (c) plane
 (d) none of these
- Q.98.** The decaying matter is normally not
 (a) moist (b) warm
 (c) pleasant smelling (d) all of these
- Q.99.** Decomposers are those organisms that
 (a) feed on small animals
 (b) feed on dead & decaying matter
 (c) convert dead plants & animals tissue into starch
 (d) none of these
- Q.100.** Plant, soil & decomposers in a forest are
 (a) independent of each other
 (b) interdependent on each other
 (c) both
 (d) none of these



ANSWERS

1. (b) 2. (a) 3. (c) 4. (b) 5. (a) 6. (c) 7. (a)
 8. (b) 9. (a) 10. (d) 11. (b) 12. (d) 13. (c) 14. (a)
 15. (c) 16. (d) 17. (a) 18. (a) 19. (b) 20. (a) 21. (a)
 22. (b) 23. (d) 24. (b) 25. (d) 26. (b) 27. (d) 28. (b)
 29. (b) 30. (b) 31. (b) 32. (b) 33. (a) 34. (b) 35. (c)
 36. (c) 37. (a) 38. (b) 39. (b) 40. (d) 41. (a) 42. (a)
 43. (a) 44. (a) 45. (a) 46. (a) 47. (c) 48. (a) 49. (c)
 50. (c) 51. (b) 52. (b) 53. (c) 54. (a) 55. (b) 56. (a)
 57. (b) 58. (c) 59. (c) 60. (a) 61. (b) 62. (a) 63. (a)
 64. (c) 65. (d) 66. (c) 67. (c) 68. (a) 69. (a) 70. (b)
 71. (c) 72. (c) 73. (c) 74. (b) 75. (d) 76. (b) 77. (c)
 78. (c) 79. (b) 80. (a) 81. (c) 82. (b) 83. (c) 84. (a)
 85. (a) 86. (b) 87. (c) 88. (c) 89. (a) 90. (a) 91. (a)
 92. (b) 93. (d) 94. (b) 95. (b) 96. (b) 97. (a) 98. (c)
 99. (b) 100. (b)



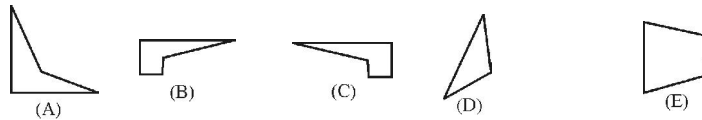
NATIONWIDE INTERACTIVE SCIENCE OLYMPIAD (NISO) SAMPLE PAPER

Total duration : 60 Minutes

Total Marks :50

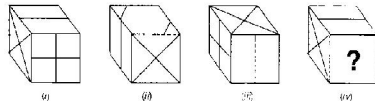
GENERAL I.Q.

1. In the the following problem a set of five alternative figures A, B, C, D and E followed by a set of four alternatives (a), (b), (c) & (d), is provided. We are required to select the alternative which represents three out of the five alternative figures which when fitted into each other would form a complete square.



- (a) ABC (b) BCD (c) CDE (d) None of these

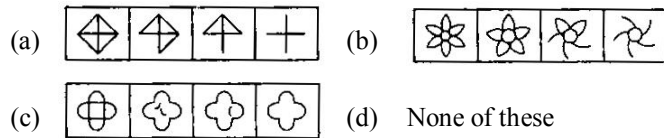
2. A cubical block with designs in the faces is presented as viewed from different directions. Find the design on the blank face?



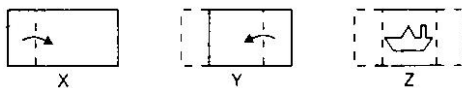
- (a) (b) (c) (d) None of these

3. In the following question, choose the set of figures which follows the given rule.

Rule : Closed figure becomes more and more open.

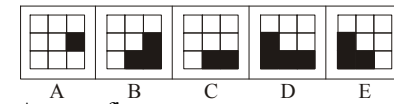


4. Following question contains a set of three figures X, Y and Z showing a sequence of folding of a piece of paper. Fig. (Z) shows the manner in which the folded paper has been cut. These three figures are followed by four answer figures from which you have to choose a figure which would most closely resemble the unfolded form of fig. (Z)

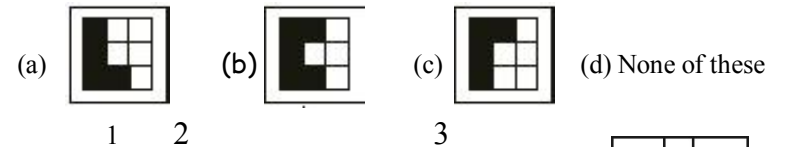


5. The following question consists of five figures marked A, B, C, D and E called the problem figures followed by four other figure marked 1, 2, 3 and 4 called the Answer figures. Select a figure from amongst the Answer figure which will continue the same series as established by the Problem figures.

Problem figures

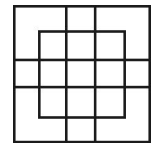


Answer figures



6. How many squares does the following figure contain?

- (a) 18 (b) 19
(c) 25 (d) None of these



7. In a cricket match, five batsmen A, B, C, D and E scored an average of 36 runs, D scored 5 more than E; E scored 8 fewer than A; B scored as many as D and E combined; and B and C scored 107 between them. How many runs did E score?

- (a) 62 (b) 45 (c) 28 (d) None of these

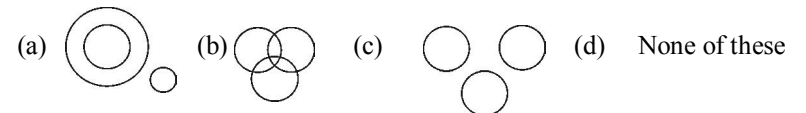
8. If x stands for 'add', y stands for 'subtract', z stands for 'divide' and p stands for 'multiply', then what is the value of $(7 p 3) y 6 x 5$?

- (a) 5 (b) 10 (c) 15 (d) None of these

9. Deepa moved a distance of 75 metres towards the north. She then turned to the left and walking for about 25 metres, turned left again and walked 80 metres. Finally, she turned to the right at an angle of 45° . In which direction was she moving finally?

- (a) North-east (b) North-west
(c) South-east (d) None of these

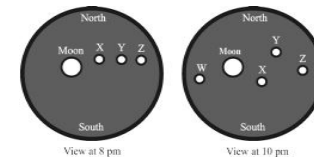
10. Select from the four alternative diagrams, the one that best illustrates the relationship among the three classes : Pigeons, Birds, Dogs.







SCIENCE

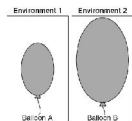
11. If all the flowers are picked off the plants, they will **not** be able to
 (a) Grow taller (b) Produce seeds
 (c) Make their own food (d) Absorb nutrients from the soil
12. A student took three ice cubes from the freezer and puts them in a glass of freshly squeezed orange juice. After 10 minutes, the student tried to take the ice cubes out of the juice. There was no ice left. What type of change took place?
 (a) Physical, because the ice cubes evaporated
 (b) Physical, because the ice cubes changed into liquid
 (c) Chemical, because the ice cubes' energy became heat
 (d) Chemical, because the ice cubes became a new substance
13. Soil in an empty field blows away during a strong wind. Which activity slows the erosion of this field over time?
 (a) Watering the field (b) Ploughing the field in rows
 (c) Planting grass in the field (d) Building an electric fence
14. By what process is energy transferred when sound waves travel through air?
 (a) Absorption of sound waves by surfaces
 (b) Vibrations of perpendicular electric and magnetic fields
 (c) Flow of air currents away from the sound source to the listener
 (d) Consecutive, repeating collisions or interactions of air particles
15. A caterpillar eats a mulberry leaf. Which of the following best describes the energy transfer in this situation?
 (a) Both the caterpillar and the leaf gain energy.
 (b) Energy is transferred from the leaf to the caterpillar.
 (c) Decomposers in the leaf obtain energy from the caterpillar.
 (d) The oak tree gains energy when the caterpillar eats the leaf.
16. What is the primary function of the large intestine?
 (a) To digest proteins (b) To absorb nutrients
 (c) To break down complex carbohydrates
 (d) To remove water from undigested waste
17. When one end of a short metal bar is heated, the opposite end will eventually become hot. Which of the following processes transfers the heat through the bar?
 (a) Condensation (b) Conduction
 (c) Convection (d) Radiation
18. If heat is added to a liquid, which of the following occurs?
 (a) The friction in the liquid increases.
 (b) The size of the liquid molecules expands.

- (c) The potential energy of the liquid changes.
 (d) The molecular motion in the liquid increases.
19. The Sun, the Moon and the planets appear to follow a similar path across the sky. Stars do not. The charts show the position of some bright objects in the night sky at two different times on the same night.



Which object is most likely a star?

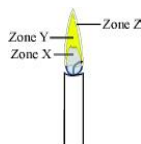
- (a) W (b) X (c) Y (d) None of these
20. The ultimate source of energy is
 (a) ATP (b) Sun (c) Plant (d) None of these
21. Which of the following is a true statement about the magnetic field between two magnets?
 (a) The south pole of one magnet is attracted to the north pole of the other magnet.
 (b) The south pole of one magnet is attracted to both poles of the other magnet.
 (c) The south pole of one magnet is attracted to the south pole of the other magnet.
 (d) The north pole of one magnet is attracted to the north pole of the other magnet.
22. Which tool is used to separate white light into the colour spectrum?
 (a)  (b)  (c)  (d) 
23. Which of the following is not a wool type?
 (a) Yak wool (b) Angora wool
 (c) Sheep wool (d) None of these
24. Match colour I with column II
 (i) Fleece (A) Silk
 (ii) Mulberry (B) Wool
 (iii) Cocoon
 (iv) Scouring
 (a) (i)-A (ii) - A (iii) - B (iv) - B
 (b) (i)-B (ii) - A (iii) - A (iv) - B
 (c) (i)-B (ii) - B (iii) - A (iv) - A
 (d) None of these



25. Neutralisation is the
 (a) Reaction of an acid and another acid
 (b) Reaction of an acid and a base
 (c) Any one of (a) or (b) (d) None of these
26. Why a turmeric stain on a cloth turned to red when washed with soap?
 Because
 (a) Soap solution is acidic (b) Soap solution is basic
 (c) Soap solution is neutral (d) None of these

27. Each balloon was filled with an identical number of moles of gas. Which of the following best explains why balloon B is larger than balloon A?

- (a) The gas in balloon A is warmer
 (b) The gas in balloon B is under more pressure
 (c) The gas in balloon A is under less pressure
 (d) The gas in balloon B is warmer



28. Like the camel, many animals that live in soft sandy areas have large wide feet compared to their body size. The large feet are an advantage in these environments because they -
 (a) Distribute body weight over a large area
 (b) Reduce the vibrations caused by walking
 (c) Are rapidly toughened by sharp sand grains
 (d) Allow rapid digging in the sand
29. The diagram given below shows the three zones of combustion of a candle flame.

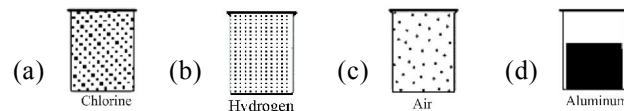
What are the respective colours of zones X, Y and Z

- (a) Yellow, Black, Blue (b) Blue, Black, Yellow
 (c) Black, Yellow, Blue (d) Blue, Yellow, Black
30. Which system is responsible for producing enzymes that aid in breaking down substances to be absorbed for the body's growth and repair?
 (a) Digestive system (b) Reproductive system
 (c) Respiratory system (d) Skeletal system

31. Which of these describes a pollution-producing process that involves only a physical change?
 (a) Coal with a high sulphur content is burned, producing gases that cause acid rain.
 (b) Chlorofluorocarbons are released, changing ozone in the upper atmosphere into oxygen.
 (c) Hot waste water is discharged into a lake, lowering oxygen levels in the water.

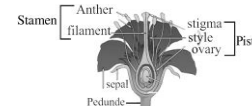
- (d) Nitrogen oxide emissions combine with water vapour, producing nitric acid.

32. In which container is the substance unable to transfer heat by radiation?



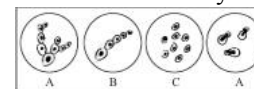
33. The safest way to dilute concentrated sulphuric acid is to add
 (a) A series of small volumes of water to the acid while stirring
 (b) The acid to water slowly while stirring constantly
 (c) The acid to a small volume of water and then add more water
 (d) Dilute sulphuric acid to a small volume of the concentrated acid.

34. In which part of the flower does fertilization take place?



- (a) Sepal (b) Stamen (c) Pistil (d) Petal

35. The following are the sketches made by some students.



The sketch not illustrative of budding in yeast is

- (a) A (b) B (c) C (d) D

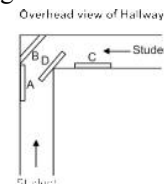
36. Which of the following is false?

- (a) Forests help to protect the soil from erosion
 (b) The component of forest are independent
 (c) The forest keeps on growing and changing and can regenerate
 (d) None of these

37. WWTP stands for

- (a) Wastewater Target Policy (b) Wastewater Treatment Policy
 (c) Wastewater Treatment Plant (d) None of these

38. Students bump into each other when they turn the corner in the hallway shown. They plan to place a mirror in the hall so that they can see each other before reaching the corner. Where should they place the mirror?



- (a) Position A (b) Position B (c) Position C (d) Position D

39. A desert lake has evaporated to half its original size over the past 50

years. This caused a large increase in the lake's salt concentration. Over these 50 years, scientists have observed a decrease in the population of one fish species and an increase in the population of a shrimp species. Which hypothesis about the organisms' ability to live with the salt concentration does the evidence support?

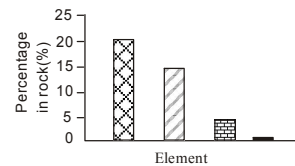
- The fish are better able to live in areas of high salt concentration
- The shrimp are better able to live in areas of high salt concentration
- Neither the shrimp nor the fish are able to live in areas of high salt concentration.
- Both the shrimp and the fish are equally able to live in areas of high salt concentration.

40. Which of the following best explains why energy stored in the battery power source diminishes over time when the circuit is complete?

- Energy is destroyed when the light bulb operates.
- The light bulb transforms energy into light and heat.
- The light bulb converts the negative charge of electrons into light and heat.
- The power source generates energy more slowly than the light bulb consumes it.

41. The table and bar graph both show the same information about the metallic elements in a rock.

Element	Percentage in rock (%)
iron	20
magnesium	14
zinc	3
aluminium	0.5



Which option correctly identifies elements in a graph?

- (a)   (b)   (c)   (d)  

42. The figure below shows how the word "ambulance" is painted on the front of some vehicles so that it reads correctly in the rear view mirror that is attached to the windshield of a car driving in front of the ambulance.

AMBULANCE

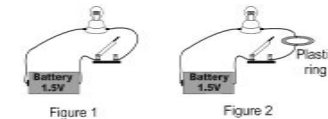
The word is painted this way because the mirror

- Turns the word upside down
- Reverses the left and the right sides of objects
- Rotates the objects by 90 degrees
- Makes the objects appear farther away

EduSys Interactive Learning

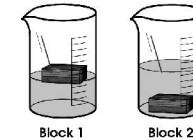
These questions are designed that they can be performed in the class / lab and can be used by the Coordinator Teacher to enhance understanding of basic science concepts.

43. The figures below show a light bulb connected to a battery in two different ways. When the switch in Figure 1 is closed the bulb will light. A plastic ring is inserted in the circuit as shown in Figure.



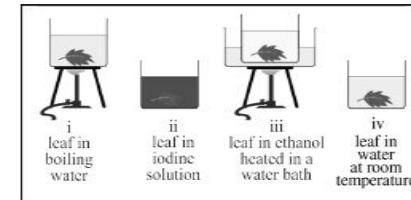
What will happen when the switch is closed in Figure 2?

- The bulb will light just as it did in Figure 1.
 - The bulb will be brighter than it was in Figure 1.
 - The bulb will light, but will be less bright than it was in Figure 1.
 - The bulb will not light at all.
44. Students have two blocks of same size. They drop each block into a beaker of water. Why does block 1 float and block 2 sink?



- Block 1 is a different material than block 2.
- Block 2 weighs less than block 1.
- Block 2 repels more water than block 1
- None of these.

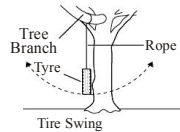
45. A student performed the starch test on a leaf. Some steps involved are shown below



The correct sequence of steps should be

- iv; ii; ii; i
 - i; iii; iv; ii
 - ii; iii; iv; i
 - None of these
46. A class investigating the motion of a tyre swing collected the data in the table below. The students were able to draw conclusions about the

factors that affect the motion of a swing. Two students from the class decide to use the class data to build a different-sized tyre swing in their backyard. They build the tyre swing shown in the diagram.



Swing	Length of Rope (meters)	Mass of Tyre (kilograms)	Time it takes for the Tyre swing to Move Back and Forth Once (seconds)
1	2	10	2.8
2	2	20	2.8
3	4	10	4.0
4	4	20	4.0

After testing the swing, they decide that they want to make it swing faster. Based on the data from the class investigation, what could the students do to make their tyre swing move back and forth faster?

- (a) Use a shorter rope (b) Use a longer rope
(c) Use a less massive tyre (d) Use a more massive tyre

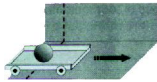
47. Lalit made four round balls W, X, Y and Z of the same size, from fresh bread dough. He then dropped each ball from a different height onto a table top. His observations are shown in the diagram.



Which option lists the balls in order from the ball dropped from the lowest height to the ball dropped from the highest height?



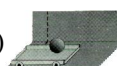

- (a) W, Y, Z, X (b) W, Z, Y, X (c) X, Y, Z, W (d) X, Z, Y, W

48. A ball is placed in the centre of a small trolley as shown in the diagram.



The trolley is given a sudden but gentle push in the direction of the arrow.

Which is the most likely position of the ball immediately after the trolley is pushed?

- (a)  (b)  (c)  (d) 

49. Which circuit is built so that if one light bulb goes out, the other three light bulbs will continue to glow?

- (a)  (b) 
(c)  (d) 

50. Tarun wanted to investigate the conditions that affect the rate at which steel wool rusts. The set-up for his investigation is shown below.



Which of the prediction is not correct?

- (a) The steel wool in Jar 1 will not rust.
(b) Vinegar alone will cause the steel wool to rust
(c) The steel wool in Jar 4 will not rust.
(d) Salt will increase the rate at which the steel wool rusts.

☺ END OF THE EXAM ☺

ANSWERS

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

☺☺☺