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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

7

EDUHEAL FOUNDATION

• LEARNING FOR LIFE •

EduHeal Foundation conducts 5 Olympiads annually reaching out to 3,500 + Schools
• 4 Lakh + Students • 50,000 Coordinating Teachers and having 500 Resource persons
in English / Maths / Science / Biotech / Computer & 300 Regional Coordinators.

PRIZES



WORKSHOP • TEACHER TRAINING PROG. • MAGAZINE/LAB GRANT • PRINCIPAL LEADERSHIP AWARD.

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SYLLABUS GUIDELINES

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

Questions

1. Food

Sources of food

What are the various sources of our food?

Utilisation of food

How do plants and animals utilise their food?

2. Materials

Materials of daily use

Do some of our clothes come from animal sources?

Which are these animals?

Who rears them?

Which part of the animals yield the yarn? How is the yarn extracted?

What kinds of clothes help us to keep warm?

What is heat?

What is the meaning of 'cool'/'cold' and 'warm' hot?

How does heat flow from/to our body to / from the surroundings?

Different kinds of materials

Why does turmeric stain become red on applying soap?

How things change/react with one another

What gets deposited on a *tawa/khurpi/kudal* if left in a moist state?

Why does the exposed surface of a cut brinjal become black?

Why is seawater salty? Is it possible to separate salt from seawater?

3. The World of the Living

Surroundings affect the living

Why are nights cooler? How does having winters and summers affect soil? Are all soils similar? Can we make a pot similar? Can we make a pot with sand? Is soil similar when you dig into the ground? What happens to water when it falls on the cemented/bare ground?

The breath of life

Why do we/animals breathe? Do plants also breathe? Do they also respire? How do plants / animals live in water?

Movement of substances

How does water move in plants? How is food transported in plants?

Why do animals drink water? Why do we sweat? Why and how is there blood in all part of the body? Why is blood red? Do all animals have blood? What is there in urine?

Multiplication in plants

Why are some plant parts like potato, onion swollen - are they of any use to the plants?

What is the function of flowers?

How are fruits and seed formed? How are they dispersed?

4. Moving Things, People and Ideas

Moving objects

Why do people feel the need to measure time?

How do we know how fast something is moving?

5. How Things Work

Electric current and circuits

How can we conveniently represent an electric circuit?

Why does a bulb get hot?

How does a fuse work?

How does the current in a wire affect the direction of a compass needle?

What is an electromagnet?

How does an electric bell work?

6. Natural Phenomena

Rain, thunder and lightning

What causes storms? What are the effects of storms? Why are roofs blown off?

Light

Can we see a source of light through a bent tube?

How can we throw sunlight on a wall?

What things give image that are magnified or diminished in size?

How can we make a coloured disc appear white?

7. Natural Resources

Scarcity of water

Where and how do you get water for your domestic needs? Is it enough? Is there rough water for agricultural needs? What happens to plants when there is not enough water for plants? Where does a plant go when it dies?

Forest products

What are the products we get from forests? Do other animals also benefit from forests? What will happen if forests disappear?

Waste Management

Where does dirty water from your house go? Have you seen a drain? Does the water stand in it sometimes? Does this have any harmful effect?



QUESTIONS FROM PREVIOUS CLASS

- Q.1.** Which of the following food items is not a milk product?
(a) Cream (b) Cheese
(c) Chappatti (d) Butter
- Q.2.** Which of the following is not an insectivorous?
(a) Crocodile (b) Frog
(c) Lizard (d) Snake
- Q.3.** Which of the following is an edible shoot?
(a) Potato (b) Radish
(c) Carrot (d) Apple
- Q.4.** A house lizard eats
(a) Oil cakes (b) Hay
(c) Small insects (d) Grains
- Q.5.** Find the odd one out ?
(a) Milk (b) Apple
(c) Carrot (d) Sugar
- Q.6.** A carnivore eats :
(a) Sprouted seeds (b) Milk
(c) Green leaves (d) Flesh of other animals
- Q.7.** The food of the butterfly is :
(a) Small insects (b) Nectar
(c) Sprouted seeds (d) Unsprouted seeds
- Q.8.** Deer eats only plant products and thus it is called:
(a) Herbivores (b) Carnivores
(c) Omnivores (d) None of these.
- Q.9.** _____ is a water soluble vitamin where as _____ is fat soluble.
(a) vitamin B, vitamin C (b) vitamin B, vitamin A
(c) vitamin D, vitamin E (d) None of these
- Q.10.** Which of the following are good sources of carbohydrates?
(a) Milk, egg, meat (b) Green leafy vegetables
(c) Cereals, sugar (d) None of these
- Q.11.** Translucent paper test is done to show the presence of

- (a) Proteins (b) Carbohydrates
(c) Vitamins (d) None of these
- Q.12.** Which of the following is true?
(a) During malnutrition ORS solution should be given
(b) Proteins are good source of energy
(c) Scurvy is caused due to deficiency of vitamin C
(d) None of these
- Q.13.** For strong bones and teeth we need
(a) Vitamin A (b) Vitamin D
(c) Vitamin E (d) Vitamin K
- Q.14.** Cereals are —
(a) Grains mostly obtained from grasses.
(b) Vegetables
(c) Animal products (d) None of these
- Q.15.** Protein is called
(a) Energy giving food. (b) Body building food.
(c) Protective food. (d) Roughage
- Q.16.** Radha was testing a food item. She took the sample in a test tube and added iodine to it. On seeing the colour she inferred that the food item contains carbohydrate. What happened in the test tube
(a) The test tube became very hot to touch
(b) The colour of solution in test tube changed to blue black
(c) A foul smelling gas is released
(d) None of these
- Q.17.** Which is a protein deficiency disease?
(a) Osteomalacia (b) Kwashiorkar
(c) Night Blindness (d) None of these
- Q.18.** Which of the following cloth is suitable to wear while lighting Diwali Diyas?
(a) Cotton. (b) Nylon.
(c) Polyester. (d) Rayon.
- Q.19.** Rearing of silk worm is called-
(a) Weaving. (b) Spinning.
(c) Ginning. (d) Sericulture.
- Q.20.** The process of obtaining jute fibres from stem is called
(a) Ginning. (b) Retting.
(c) Bobbin. (d) Weft.
- Q.21.** Which is the correct statement?

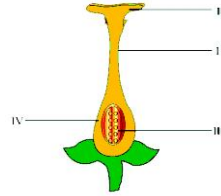
- (a) All synthetic fibres are rough to touch.
(b) Cotton is grown in alluvial soil.
(c) Polyester absorbs more water than cotton.
(d) Silk and wool both are obtained from animals.
- Q.22.** Match the following
- | | |
|----------------|-------------|
| A. Retting | (i) Wool |
| B. Shearing | (ii) Silk |
| C. Ginning | (iii) Jute |
| D. Sericulture | (iv) Cotton |
- | | | | |
|-----------|---------------|------|-------|
| A | B | C | D |
| (a) (ii) | (i) | (iv) | (iii) |
| (b) (ii) | (iii) | (iv) | (i) |
| (c) (iii) | (i) | (iv) | (ii) |
| (d) | None of these | | |
- Q.23.** Which of the following is false?
(a) India cultivated the cotton first
(b) Jute is obtained from stem
(c) Rayon and Nylon are plant fibres
(d) None of these
- Q.24.** Match the following
- | | |
|---------------|--------------|
| A. Seed | (i) Silk |
| B. Larva | (ii) Wool |
| C. Stem | (iii) Cotton |
| D. Outer skin | (iv) Jute |
- | | | | |
|-----------|---------------|-------|-------|
| A | B | C | D |
| (a) (iv) | (ii) | (i) | (iii) |
| (b) (iii) | (i) | (iv) | (ii) |
| (c) (ii) | (iv) | (iii) | (iv) |
| (d) | None of these | | |
- Q.25.** Which of the following is opaque?
(a) Glass (b) Butter paper
(c) Wood (d) None of these
- Q.26.** All materials
(a) Occupy space (b) Have mass
(c) Can be felt by one or more of our senses
(d) All are correct
- Q.27.** Which of the following is a wrong match?
(a) Glass-Translucent (b) Wood-opaque
(c) Butter paper - Translucent
(d) None of these

- Q.28.** Which of the following is odd one?
 (a) Gold (b) Silver
 (c) Iron (d) Oxygen
- Q.29.** Which of the following is a metal which is liquid?
 (a) Sodium (b) Mercury
 (c) Iron (d) None of these
- Q.30.** Which is the correct statement?
 (a) Metals are transparent while non metals are opaque
 (b) Wood have lusture while iron is dull
 (c) Oil floats on water while dry leaves sink
 (d) None of these
- Q.31.** A solid is said to be amorphous when:
 (a) It has definite geometrical shape.
 (b) It has no geometrical shape.
 (c) It has definite colour.
 (d) It has no definite colour.
- Q.32.** We need to separate the components of a mixture because
 (i) Mixtures are useless.
 (ii) Non useful components need to be separated from useful ones.
 (iii) Impurities and harmful substances need to be removed.
 (iv) The components are different and invisible.
 (a) (i) only (b) (ii) & (iii)
 (c) (iii) & (iv) (d) (iv) only
- Q.33.** Which of the following is a false statement?
 (a) Cream is separated from milk by churning process.
 (b) Iron is a magnetic substance.
 (c) Pond water is a mixture.
 (d) Sharbat is a pure substance.
- Q.34.** A _____ is used for separating insoluble solid particles from a liquid.
 (a) Piece of muslin cloth. (b) Filter paper.
 (c) Both (a) and (b). (d) None of these.
- Q.35.** Which of the following is a true statement?
 (a) Different substances have different properties.
 (b) Aluminium is a magnetic substance.
 (c) Butter is separated from milk by sedimentation.
 (d) Distilled water is obtained by filtration.
- Q.36.** The property which forms the basis of sieving is –

- (a) Difference in weight. (b) Difference in size.
 (c) Difference in shape. (d) Difference in colour.
- Q.37.** A mixture of sand and iron fillings can be separated by
 (a) Magnetic separation (b) Hand picking
 (c) Wincwing (d) None of these
- Q.38.** The components of brass are –
 (a) Copper and zinc. (b) Copper and iron.
 (c) Carbon, hydrogen and oxygen.
 (d) Carbon and sulphur.
- Q.39.** Which of the following is periodic change?
 (a) Burning of candle (b) Melting of ice
 (c) Sun set and sun rise (d) None of these
- Q.40.** Which of the following is chemical change?
 (a) Mixing sugar in water (b) Photosynthesis
 (c) Melting of wax (d) None of these
- Q.41.** Which of the following is a slow, irreversible and chemical change?
 (a) Lightning in the sky (b) Melting of wax
 (c) Formation of manure from dead & decayed material
 (d) None of these
- Q.42.** Which of the following is false?
 (a) Bursting of balloon is an irreversible change
 (b) Chemical changes are always irreversible
 (c) Heart beat is a periodic change
 (d) None of these
- Q.43.** When we can recover a given substance in its original form we say it is as
 (a) Slow change (b) Reversible change
 (c) Chemical change (d) None of these
- Q.44.** The example of changes given in previous question is
 (a) Photosynthesis (b) Streching of rubber band
 (c) Making of curd (d) None of these
- Q.45.** Changes can be classified as reversible and irreversible. The given table lists some reversible and irreversible changes.
- | Reversible change | Irreversible change |
|--------------------------|----------------------|
| Folding a piece of cloth | Burning of paper |
| Stretching a rubber band | Melting of chocolate |
- Which of the following changes is categorized incorrectly?
 (a) Folding a piece of cloth

- (b) Stretching a rubber band
- (c) Melting of chocolate
- (d) Burning of paper

Q.46. Which labelled structure illustrates the part where pollen grains germinate to give pollen tube?



- (a) I
- (b) II
- (c) III
- (d) IV

Q.47. In an experiment, Lalit took two pots filled with soil and labelled them as I and II. Then, he took two marigold plants. He removed the roots of one marigold plant and placed it in pot. I. He kept the roots of the other plant intact and placed it in pot II. He watered the two plants regularly and observed for any change. Which of the following statements regarding plants in pots I and II is correct?

- (a) The plant in pot I will die
- (b) The plant in pot I will remain healthy
- (c) The plants in both pots I and II will die
- (d) The plants in both pots I and II will remain healthy

Q.48. Plants that have parallel venation in their leaves are ___i___ and ___ii___

The information in which option completes the given statement?

- (a) Wheat, rice
- (b) Rice, tulsi
- (c) Tulsi, mint
- (d) Mint, wheat

Q.49. ___i___ plant has fibrous roots and has ___ii___ venation in the leaves. The information in which row completes the given statement?

- (a) Maize, reticulate
- (b) Mango, parallel
- (c) Maize, parallel
- (d) Mango, reticulate

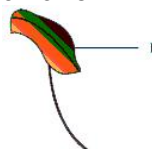
Q.50. Which part of the plant helps in the transportation of food prepared by the leaves to various other parts of the plants body?

- (a) Stem
- (b) Root
- (c) Petal
- (d) Stamen

Q.51. The given diagram illustrates the stamen of a flower

The structure labelled I represent the

- (a) Filament
- (b) Anther
- (c) Ovary
- (d) Style



Q.52. Which of the following plants is an herb?

- (a) Mango
- (b) Tomato
- (c) Neem
- (d) Rose plant

Q.53. Plants with soft green stems are called ___i___. ___ii___ have stem branching near the base

The information in which row completes the given statements?

- (a) Herbs, Shurbs
- (b) Shrubs, Herbs
- (c) Shrubs, Shrubs
- (d) Herbs, Herbs

Q.54. In birds, the bones of hind limbs are used in

- (a) Walking and Perching
- (b) Respiration
- (c) Flying
- (d) None of these

Q.55. The outer skeleton of a snail is called

- (a) Shell
- (b) Cover
- (c) Bone
- (d) None of these

Q.56. The animal that does not have any bone is

- (a) Snake
- (b) Fish
- (c) Bird
- (d) None of these

Q.57. Which bone protects the spinal cord & gives support to the whole body?

- (a) Backbone
- (b) Ribcage
- (c) Sternum
- (d) none of these

Q.58. The soft parts present in our ear are called _____

- (a) Cartilage
- (b) Tendon
- (c) Both
- (d) None of these

Q.59. Which gas is used by plants for photosynthesis?

- (a) Oxygen
- (b) Carbondioxide
- (c) Nitrogen
- (d) None of these

Q.60. Pond is an example of _____ habitat.

- (a) Aquatic flowing
- (b) Aquatic & stagnant
- (c) Desert
- (d) None of these

Q.61. Which of the following is a terrestrial habitat?

- (a) Air
- (b) Forest
- (c) River
- (d) Pond

Q.62. The process by which new individuals of the same organism are produced by existing organism is known as -

- (a) Respiration
- (b) Digestion
- (c) Reproduction
- (d) Excretion

Q.63. The habitat consists of biotic component i.e. _____ and the Abiotic component. i.e. _____

- (a) Living, non living (b) Nonliving, living
(c) Nonliving (d) None of these
- Q.64.** When a body moves along a straight line path it is said to be in
(a) Curvilinear motion (b) Rectilinear
(c) Translatory Motion (d) None of these
- Q.65.** The hands of clock, the spokes of wheel are examples of
(a) Rotary motion (b) Revolutionary motion
(c) Oscillatory motion (d) none of these
- Q.66.** Repetitive motion which takes place at equal intervals of time is
(a) Periodic motion (b) Uniform motion
(c) Random motion (d) None of these
- Q.67.** What is measurement?
(a) Comparison of an unknown quantity with some known fixed quantity
(b) Comparison of some known quantity with some unknown quantity
(c) Both (a) and (b) (d) None of these
- Q.68.** The three units—metre, kilogram and Second are known as
(a) National units (b) Derived units
(c) Fundamental units (d) None of these
- Q.69.** For measuring large distance, meter is not convenient, hence we define a larger unit called _____.
(a) Millimeter (b) Decimeter
(c) Kilometer (d) None of these
- Q.70.** An object is said to be in motion if:
(a) Its position doesn't change with time.
(b) It doesn't move. (c) Both (a) and (b).
(d) Its position changes with time.
- Q.71.** The S.I. system of measurement is the abbreviation of:
(a) International system of units.
(b) Standard of India. (c) Systeme International.
(d) All of the above are right.
- Q.72.** The result of measurement is expressed in two parts one is _____ and the other is _____.
(a) Number, unit of measurement
(b) Number, number (c) Unit, unit
(d) None of the above

- Q.73.** The known fixed quantity which is the measure of comparison with unknown quantity is called
(a) Meter (b) Centimeter
(c) Unit (d) All of the above.
- Q.74.** When materials are placed in the path of a light beam various things can happen. Which word describes materials that allow light through easily?
(a) translucent (b) transparent
(c) absorber (d) opaque
- Q.75.** When materials are placed in the path of a light beam various things can happen. Which word describes the behaviour of fog when light is shone through it?
(a) Opaque (b) Translucent
(c) Reflect (d) Transparent
- Q.76.** Which of the following statements about colour is NOT true?
(a) An object looks white in white light because it reflects red, green and blue light
(b) An object looks red in white light because it absorbs blue and green light
(c) A blue object looks black in red or green light because it reflects red or green light
(d) A green filter produces green light because it absorbs red and blue light
- Q.77.** Which colour combination produces the colour yellow?
(a) Green and blue (b) Blue and red
(c) Red, green and blue (d) Red and green
- Q.78.** In a pinhole camera, we get an upside down image where as in case of mirrors we see—
(a) Left side as the right side and the right side as the left side.
(b) Objects as they are. (c) Upside down reflections.
(d) Backside of the object.
- Q.79.** “Shadow of an object gives an idea about its shape”. This statement is:
(a) True (b) Misleading
(c) False (d) None of these.
- Q.80.** Size of shadow of an object can be changed if:
(a) Its colour is changed. (b) Its direction is changed.
(c) Its distance from the screen is changed.
(d) Both (a) and (b).

- Q.81.** Translucent objects are those objects
 (a) Through which we can see clearly.
 (b) Through which we can see but not clearly.
 (c) Through which we cannot see.
 (d) Which do not allow the light to pass through them.
- Q.82.** The two kinds of electrical charges are
 (a) High and low (b) Positive and negative
 (c) Static and dynamic (d) None of these
- Q.83.** Name the protective device which opens an electric circuit if too much current flow through it?
 (a) Transformer (b) Fuse
 (c) Rectifier (d) None of these
- Q.84.** When an electric bulb breaks, there is a mild bang due to
 (a) The chemical reaction between the enclosed gas
 (b) The compressed gases rushing out suddenly
 (c) The air rushing in to fill the evacuated space into till the evacuated space.
 (d) None of these
- Q.85.** Electric energy may be converted to:
 (a) Mechanical Energy (b) Cannot be converted.
 (c) Air (d) All of the above.
- Q.86.** Electricity is a form of:
 (a) Energy (b) Pressure
 (c) Work (d) All of the above.
- Q.87.** "Our body is conductor of electricity", this statement can be considered as:
 (a) True (b) False
 (c) Can't be said. (d) Neither true nor false.
- Q.88.** Ends of the magnet are known as:
 (a) Points (b) Terminals
 (c) Poles (d) All of these.
- Q.89.** Magnets should be stored in pairs such that:
 (a) Their unlike poles are on same side separated by a wooden piece.
 (b) Their like poles are on the same side.
 (c) Their unlike poles are touching each other.
 (d) Their like poles are tied together.
- Q.90.** If we spread iron filings on a sheet of paper and place a bar magnet over them, then:

- (a) The iron filings will be attracted uniformly by the magnet.
 (b) More iron filings will be attracted towards the centre of the magnet.
 (c) More iron filings will be attracted towards the ends of the magnet.
 (d) Iron filings will be attracted only on the sides of the magnet
- Q.91.** A freely suspended bar magnet always comes to rest in:
 (a) North – South direction. (b) East – West direction.
 (c) Any direction. (d) Upside down.
- Q.92.** The process of collecting rainwater for later use is:
 (a) Rain water sewage (b) Groundwater collection.
 (c) Rain water harvesting. (d) None of these
- Q.93.** The natural calamities caused by water are –
 (a) Floods. (b) Drought.
 (c) Tsunami (d) Both (a) & (c)
- Q.94.** Match the items of column A with those of column B.
- | Column A | Column B |
|----------------------------|------------------------------|
| I. Distilled water | A. Salinity |
| II. Potable water | B. Water |
| III. The saltness of water | C. Unfit for human beings |
| IV. Snow is a form of | D. Fit for human consumption |
| (a) I–C, II-D, III-A, IV-B | (b) I–D, II-C, III-B, IV-A |
| (c) I–D, II-A, III-C, IV-B | (d) I–C, II-B, III-D, IV-A |
- Q.95.** Which one of the following statements is true?
 (a) Life is possible on the earth without water.
 (b) Saline water is useful for plants.
 (c) Water boils at 80°C.
 (d) Water vapours change into water on cooling.
- Q.96.** Amit observed bubbles when he immerses a cotton ball into a bowl of water.
 Bubbles appear from cotton because
 (a) Cotton produces bubbles
 (b) Cotton cannot dissolve in water
 (c) Water produces air in the presence of cotton
 (d) Water occupies the spaces in cotton, thereby releasing air
- Q.97.** Which of the following statements about air is incorrect?
 (a) It cannot be seen
 (b) It contains dust particles
 (c) Moving air is called wind

(d) Water does not contain air

Q.98. _____ wastes are mostly biodegradable.

- (a) Organic (b) Inorganic
(c) Both (a) and (b). (d) None of these.

Q.99. _____ are called farmer's friends.

- (a) Sparrows. (b) Oxes.
(c) Earthworms. (d) Cows.

Q.100. Which of the following statements is false?

- (a) Organic matter can be decomposed and made into manure.
(b) Domestic waste is biodegradable waste.
(c) The wastes have different physical, chemical and biological characteristics.
(d) Open dumps are a good method of disposal of wastes.



ANSWERS

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



NATIONWIDE INTERACTIVE SCIENCE OLYMPIAD (NISO) SAMPLE PAPER

Total duration : 60 Minutes

Total Marks : 50

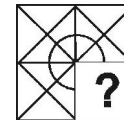
GENERAL I.Q.

- Neck is related to Tie in the same way as Waist is related to?
 (a) Watch (b) Belt (c) Ribbon (d) Shirt
- In the following question, a sequence of groups of letters and numbers is given with one term missing as shown by (?). Choose the missing term out of the given alternatives.

D-4, F-6, H-8, J-10, ?, ?

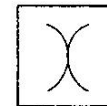
- (a) K-12, M-13 (b) L-12, M-14
 (c) L-12, N-14 (d) K-12, M-14

- In the following question, complete the missing portion of the given pattern by selecting from the given alternative (a), (b), (c), and (d)



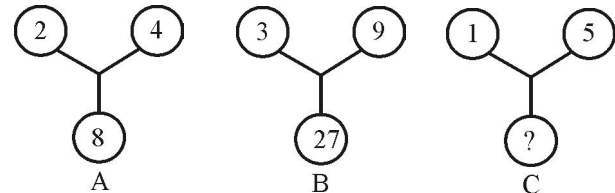
- (a) (b) (c) (d)

- Figure X is somewhere hidden in any one of the following figure. Which is that?



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

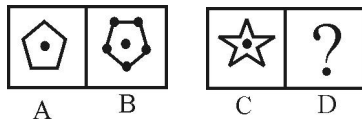
- Direction : In the following question, a set of figures carrying certain characters, is given. Assuming that the characters in each set follow a similar pattern, find the missing character at position ?



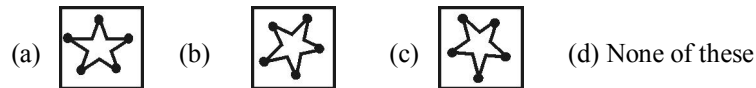
- (a) 75 (b) 6 (c) 25 (d) 5

6. If PALE is coded as 2134, EARTH is coded as 41590, how is PEARL coded in that code?
 (a) 29530 (b) 24153
 (c) 25413 (d) None of these
7. Choose the number which is different from others in the group
 (a) 12 (b) 25 (c) 37 (d) None of these
8. Laxman went 15 kms to the west from my house, then turned left and walked 20 kms. He then turned East and walked 25 kms and finally turning left covered 20 kms. How far was he from his house?
 (a) 5 kms (b) 10 kms (c) 40 kms (d) None of these
9. Following question consists of two sets of figures. Figures A, B, C and D constitute the problem set while figures (a), (b), (c), and (d) constitute the answer set. There is a definite relationship between figures A and B. Establish a similar relationship between figures C and D by choosing a suitable figure from the answer set.

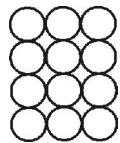
Problem Set



Answer Set



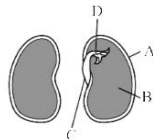
10. In the following figure. If the centres of all the circles are joined by horizontal and vertical lines, then find the number of squares that can be formed.



- (a) 6 (b) 7 (c) 8 (d) None of these

SCIENCE

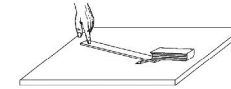
11. The diagram below represents a bean seed that has been cut in half to show its various structures.



Which letter represents the stored food that the new plant will use for early development?

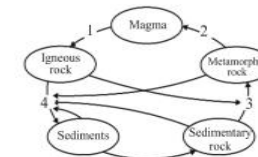
- (a) A (b) B (c) C (d) D

12. Which two factors determine the gravitational attraction between two objects?
 (a) Time and temperature (b) Shape and orbital speed
 (c) Colour and hardness (d) Mass and distance apart
13. The drawing below shows a person about to lift a book using a ruler and pencil.

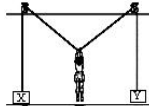


This drawing illustrates an example of which simple machine?

- (a) Gear (b) Balance (c) Pulley (d) Lever
14. Why do eukaryotic cells require mitochondria?
 (a) To break down cell debris for recycling
 (b) To control division for cell reproduction
 (c) To release stored energy for cell activities
 (d) To package materials inside cells for transport
15. Which statement explains why stars appear to change position in Earth's sky over thousands of years?
 (a) Stars are orbiting a central location in our solar system.
 (b) Stars are viewed from different positions in our solar system.
 (c) Stars are moving apart due to the continuous expansion of the universe.
 (d) Stars are pulled by gravity towards a black hole at the centre of the universe.
16. A lake is surrounded by hills covered with trees and shrubs. Which statement correctly describes how a change to the plants in this area will affect this environment?
 (a) Adding plants to the hillsides will increase sedimentation in the lake.
 (b) Adding plants to the edge of the lake will increase erosion by the lake.
 (c) Removing plants from the hillsides will increase erosion on the hills.
 (d) None of these
17. Which team would be *most* appropriate for determining whether life exists on Mars?
 (a) Two meteorologists and two astronomers
 (b) Two physicists and two mathematicians
 (c) A pilot, a navigator, a technician, and an engineer
 (d) A biologist, a chemist, an engineer, and a geologist
18. A rock cycle diagram is shown below.

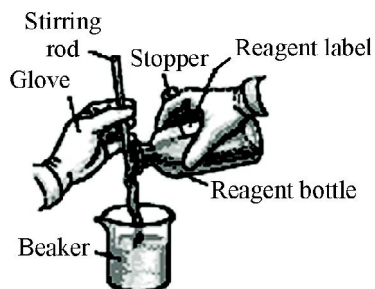


- What happens to rocks at location 3 in the diagram?
- (a) Heating and pressing (b) Melting and cooling
(c) Weathering and eroding (d) Compacting and cementing
19. In the late twentieth century as people became more concerned about protecting their environment, scientists researched better ways to
- (a) Recycle non-renewable resources.
(b) Increase pesticide runoff into rivers.
(c) Eliminate the use of renewable resources.
(d) Add chlorofluorocarbons to the atmosphere.
20. Two parallel copper wires are each carrying the same electrical current in the same direction. Which statement explains how they respond to each other?
- (a) They repel each other, because they have similar magnetic fields.
(b) They repel each other, because they have opposite magnetic fields.
(c) They strengthen each other, because they have similar magnetic fields.
(d) They strengthen each other, because they have opposite magnetic fields.
21. A student pushes a hollow ball with a small amount of force causing it to roll quickly across the room. The student then pushes a solid ball with the same amount of force. Which statement demonstrates an understanding of force and its effects on an object?
- (a) The force on both balls was the same; therefore each ball pushes back with the same amount of force.
(b) The force on both balls was the same; however each ball pushes back with a different amount of force.
(c) The solid ball pushes back with a greater force than the hollow ball, because the solid ball has a greater mass.
(d) The hollow ball pushes back with a greater force than the solid ball, because the solid ball moved faster and further.
22. A laboratory thermometer ranges from
- (a) 35°C to 42°C (b) -10°C to 110°C
(c) 35°C to 110°C (d) 42°C to 110°C
23. Which tool is *least* helpful for predicting weather?
- (a) Wind gauge (b) Rain gauge
(c) Barometer (d) Thermometer
24. Which statement explains the function of the diaphragm and its effect on the chest cavity during inhalation?
- (a) The diaphragm relaxes to decrease volume and decrease pressure.
(b) The diaphragm contracts to increase volume and decrease pressure.
(c) The diaphragm relaxes to increase volume and increase pressure.
(d) The diaphragm contracts to decrease volume and increase

- pressure.
25. Which of the following *best* describes the structure-function relationship of a ligament?
- (a) Rigid – connecting bone to bone
(b) Flexible – connecting bone to bone
(c) Rigid – connecting muscle to bone
(d) Flexible – connecting muscle to bone
26. Which sequence shows the pathway that food takes in the digestive system?
- (a) Stomach, oesophagus, large intestine, small intestine
(b) Oesophagus, stomach, large intestine, small intestine
(c) Stomach, oesophagus, small intestine, large intestine
(d) Oesophagus, stomach, small intestine, large intestine
27. Plants can survive in a clear, closed container without animals. Animals cannot survive in a closed container without plants. Why can't animals survive in a closed container without plants?
- (a) Plants and animals need water to survive.
(b) Plants produce oxygen, which animals need.
(c) Plants take in and give off water; animals only take in water.
(d) Plants are stationary; most animals roam freely
28. What is the best reason for including fruits and leafy vegetables in a healthy diet?
- (a) They have a high water content.
(b) They are the best source of protein.
(c) They are rich in minerals and vitamins.
(d) They are the best source of carbohydrates.
29. If the person in the middle lets go of the rope, in which direction would objects X and Y go?
- 
- (a) X up, Y up (b) X up, Y down
(c) X down, Y down (d) X down, Y up
30. If a student's hand is accidentally exposed to an acidic solution, what should be done?
- (a) Cover the hand with oil.
(b) Rinse the hand in a concentrated base.
(c) Wrap the hand in paper towels
(d) Rinse the hand in running water.
31. A certain virus causes a disease of the digestive system. What is the *most* likely source of this virus?

- (a) Water (b) Soil (c) Insects (d) Air

32. The diagram shows a standard technique for dispensing liquid in a laboratory. What is the main reason that liquid should be dispensed from a reagent bottle in this manner?



- (a) The liquid is slowly heated by friction.
 (b) The liquid's increased surface area absorbs more oxygen.
 (c) The stirring rod keeps the liquid from splashing.
 (d) The beaker causes liquids of different densities to form layers.

33. One of the principal causes of acid rain is.

- (a) Waste acid from chemical factories being pumped into rivers.
 (b) Acid from chemical laboratories evaporating into the air.
 (c) Gases from burning coal and oil dissolving in water in the atmosphere.
 (d) Gases from air conditioners and refrigerators escaping into the atmosphere.

34. Which of the following matches the word sterilisation?

- (a) Drinking water is treated with chlorine before domestic use.
 (b) The result of being injected with a dead or weakened form of a micro-organism to stimulate antibody production.
 (c) Using yeast and sugar solution to make alcohol.
 (d) Milk is treated to remove some fat to make it semi-skimmed.

35. What characteristic of water remains the same no matter what is dissolved in it?

- (a) The ratio of hydrogen to oxygen.
 (b) The ability to refract light.
 (c) The hydroxide ion concentration.
 (d) The freezing temperature.

36. When a person is frightened by a wild animal, some organ systems immediately become active, while others are suppressed. Which of these systems is likely to be suppressed?

- (a) Muscular system (b) Respiratory system
 (c) Endocrine system (d) Digestive system

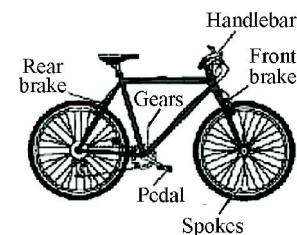
37. Which is True about energy resources?

- (a) Non-renewable energy resources will always supply most of our energy needs.
 (b) Renewable energy resources can be replaced as they are used.
 (c) Non-renewable fossil fuels are no longer being formed.

(d) Sun is the ultimate source of energy.

38. Useful friction is created by the

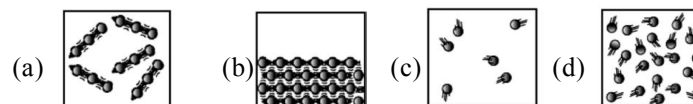
- (a) Spokes
 (b) Gears
 (c) Brakes
 (d) Curved handlebars



39. The diagram below shows a model of a sample of gas particles at room temperature.



Which diagram best shows the results of removing heat from this sample until it freezes?



40. The diagram below represents a magnified view of an air sac in the human lung. The white arrows indicate blood flow.

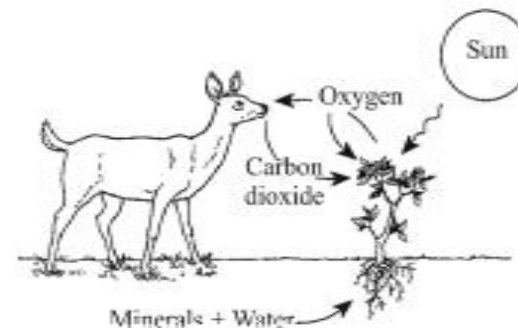


Which two systems are interacting in this diagram?

- (a) Skeletal and muscular (b) Nervous and endocrine
 (c) Reproductive and digestive (d) Respiratory and circulatory

Base your answers to questions 41 and 42.

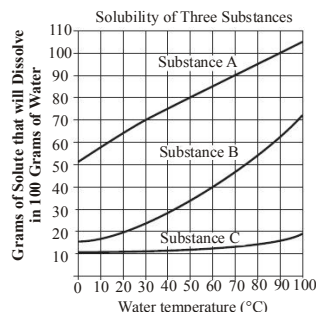
The diagram below shows some relationships within a natural community.



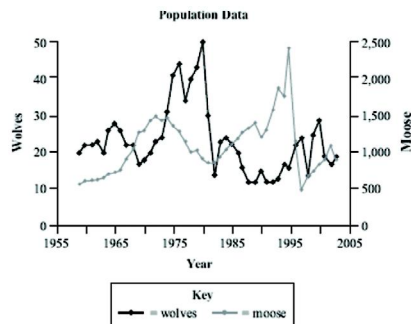
41. Which statement best explains the relationships shown?
- Water changes over time to a nonrenewable resource.
 - Living things exchange materials with their environment.
 - Minerals recycle the dead materials in the environment.
 - Living things produce other living things.
42. Which process produces oxygen that is released into the atmosphere?
- Respiration
 - Excretion
 - Locomotion
 - Photosynthesis

Base your answers to questions 43 and 44 on the graph below.

The graph given below shows the solubility (amount that will dissolve in 100 grams of water) of three substances at various water temperatures.



43. Which statement is a correct interpretation of the data in the graph?
- As water temperature increases, solubility decreases.
 - As water temperature increases, solubility increases.
 - As water temperature increases, solubility increases and then decreases.
 - As water temperature increases, solubility decreases and then increases.
44. As the water temperature is increased from 30°C to 70°C, how many more grams of substance A will dissolve in 100 grams of water?
- 20 g
 - 50 g
 - 40 g
 - 90 g
45. Examine the population curves for wolves and moose in the graph below. Which statement correctly describes the population relationship between the wolves and moose from 1968 to 1973?



- As the moose population increased the wolf population increased.
- As the moose population increased the wolf population decreased.
- As the wolf population decreased the moose population decreased.
- As the wolf population increased the moose population decreased.

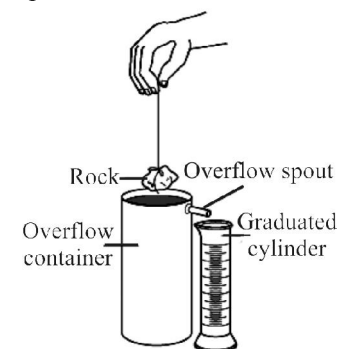
EduSys Interactive Learning

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.

46. In an experiment salt and sand are mixed together. Which of these procedures could be used to most easily separate the salt from the sand?
- * stir the mixture into a glass of water
 - * pour the mixture in the glass through a filter
 - * evaporate the water
 - * pour the mixture onto a piece of paper
 - * brush the mixture into a pile
 - * drag a magnet through the pile
 - * put the mixture in a pan layer
 - * heat the pan for 10 minutes
 - * let the hot mixture cool slowly
 - * spread the mixture into a thin layer
 - * look at the mixture through a magnifying glass
 - * separate the crystals with a pin
47. A student uses the equipment shown in the figure to study which liquid is the thickest. What information is the most appropriate to record?
- The volume of each of the liquids in the cylinders
 - The size and mass of each of the marbles
 - The height of each of the graduated cylinders
 - The time it takes for each marble to hit bottom



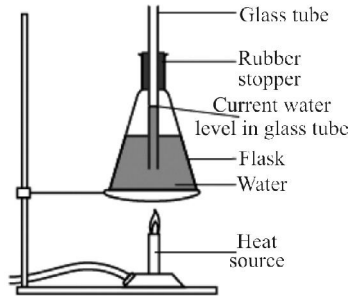
48. The diagram below shows a rock suspended above an overflow container filled with water up to the overflow spout. A graduated cylinder is positioned next to the container to collect water that comes out of the overflow spout.



Which property of the rock can be directly determined when the rock is placed in the overflow container?

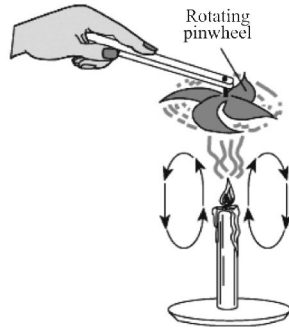
- Mass
- Volume
- Density
- Hardness

49. The diagram below shows water being heated in a flask. The flask has a rubber stopper with a glass tube extending through it. The current level of the water in the glass tube is indicated. The temperature of the water is 25°C .



If heating continues, the water in the glass tube will most likely

- (a) Turn into a solid (b) Become more dense
(c) Move into the flask (d) Rise higher in the tube
50. The diagram below shows a pinwheel rotating above a lit candle. The arrows indicate the direction of air flow.



Which energy transformation is best shown in this diagram?

- (a) Heat to mechanical (b) Sound to heat
(c) Mechanical to light (d) Heat to sound

☺ **END OF THE EXAM** ☺

ANSWERS

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

