



UNICUS
OLYMPIADS

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Sample Paper



Class 6

Unicus Science Olympiad (USO)

Time: 60 minutes

Pattern and Marking Scheme			
Section	Total Questions	Marks per Question	Total Marks
Classic Section	40	1	40
Scholar Section	10	2	20
Grand Total	50		60

Classic Section (Each Question is 1 Mark)

1. Which of the following shows the correct order of energy conversions that take place in a solar-powered plane?
 - a. Light energy → Kinetic energy
 - b. Heat energy + Light energy → Chemical energy → Kinetic energy
 - c. Heat energy + Light energy → Electrical energy → Kinetic energy
 - d. Chemical energy → Electrical energy → Kinetic energy

2. Henry was eating a hamburger when he started to choke. Which of the following is the most likely reason that caused him to choke?
 - a. The food had entered his windpipe.
 - b. The food could not be digested in the gullet.
 - c. The food was stuck in the stomach.
 - d. The food had gone into the gullet.

3. What would happen if instead of a pivot joint, the neck has the joint which is present in the skull?
 - a. We will not be able to move our necks at all as the skull has immovable joints.
 - b. It will make our neck more movable, as the skull has a gliding joint.
 - c. It will make our neck stronger as the skull is protective.
 - d. Nothing will happen as both have the same joints.

4. A boy pulls a wagon with a force of 6 N east and another boy pushes it with a force of 3 N east. Calculate the total force applied on the wagon:
 - a. 2 N
 - b. 18 N
 - c. 9 N
 - d. 3 N

5. Consider the following statements and choose the correct option:
Statement 1: Cockroaches remain hidden and inactive during the day while they become active at night.
Statement 2: Cockroaches have an outer hard skeleton which is made up of different units joined together.
 - a. Statement 1 is correct but statement 2 is incorrect.
 - b. Statement 1 is incorrect but statement 2 is correct.
 - c. Both statements are incorrect.
 - d. Both statements are correct.

6. Peter wants to dry his wet shirt as fast as possible, which of the following he should do?
 - a. Put it in a cool, shady place
 - b. Roll it and put it in the room
 - c. Stretch it out in a sunny place
 - d. Fold it and put it in a suitcase

7. Match the column I with column II:

	Column I		Column I
1.	Energy giving food	P.	Apple, Pumpkin, Orange
2.	Bodybuilding food	Q.	Eggs, Meat, Milk
3.	Protective food	R.	Potato, Sugar, Maize

a. 1 - R, 2 - Q, 3 - P

b. 1 - Q, 2 - R, 3 - P

c. 1 - Q, 2 - P, 3 - R

d. 1 - R, 2 - P, 3 - Q

8. Which of the following statements is incorrect?

- a. The property of a new substance formed in a chemical change is different.
- b. In gases, molecules have a lot of freedom to move.
- c. In liquids, molecules are very tightly packed.
- d. No new substance is formed in a physical change.

9. Sam met with an accident and some bones of his ribcage were broken. Why was he finding it difficult to breathe?

- a. Ribcage protects liver which helps in the breathing process.
- b. Ribcage protects lungs which help in the breathing process.
- c. Ribcage helps in the breathing process.
- d. All of the above

10. Read the following clue and identify the animal:

Clue 1: The special adaption of this animal to digest cellulose is unique.

Clue 2: It has a large sac between the large intestine and small intestine in which cellulose is digested by the action of certain bacteria.



d. All of the above

11. Read the clues given below and identify the planet:

Clue 1: It is so big that all the planets of the solar system can easily fit inside it.

Clue 2: It completes one rotation on its axis in about 10 hours.

Clue 3: It is the fastest spinning planet in the solar system.

a. Mars

b. Earth

c. Saturn

d. Jupiter

12. State which of the following statements are TRUE:

1. An earthquake can be detected with an instrument called a seismograph.
2. An earthquake is a sudden shaking of the ground caused by the movements or vibrations deep inside the earth.
3. The layers of the earth under the tectonic plates are cold and in a molten state because the core below is extremely cold.

- | | |
|-----------------|-----------------|
| a. 2 and 3 only | b. 1 and 3 only |
| c. 1 and 2 only | d. 1, 2 and 3 |
-

13. Read the passage given below and answer the question that follows:

Chemicals released in the air react with rain to fall down as X. X not only harms the crops but also forest vegetation and buildings as well as animals, fish and other wildlife.

Identify X:

- | | |
|--------------|----------|
| a. Snow | b. Hail |
| c. Acid rain | d. Ozone |
-

14. Consider the pictures shown below. The first picture shows the tyre of the lorry in contact with the road. The second picture shows a boy sliding down the slide in the park. What force is common between them?



- | | |
|---------------------|-------------------|
| a. Muscular force | b. Magnetic force |
| c. Frictional force | d. Elastic force |
-

15. Tina wants to make lemon pickles at home. Which of the following processes should she use to preserve the lemons at home?

- a. She should add milk to the lemons.
 - b. She should boil the lemons with milk.
 - c. She should add salt and oil to the lemons.
 - d. She should dry the lemons in a steamer.
-

16. Identify the food item shown below and choose the correct statement for it:



- a. It reproduces by the buds that are present on the leaves.
 - b. It reproduces by the seeds.
 - c. It reproduces by the buds that are present on the stem.
 - d. It reproduces by the buds that are present on the roots.
-

17. Take a look at the seed shown below. Which method will the seed be dispersed so that it is farthest from its parent plant?



By animals



Birds



By insect



By wind

-
18. Choose a pair of animals which have exactly the same mechanism of breathing:

- | | |
|----------------------|--------------------------|
| a. Turtle : Lizard | b. Bat : Fish |
| c. Butterfly : Mouse | d. Earthworm : Cockroach |

-
19. Man carries out deforestation to bring up more space for farms and buildings. Some of them are cut for furniture, wood and paper manufacturing. Choose the option which represents the effects of deforestation:

- i. Topsoil erosion can occur
- ii. Extinction of some animals
- iii. Issues of global warming might come up
- iv. Some possible sources of natural drugs to cure diseases may be lost

- | | |
|------------------------------|-------------------------------|
| a. (i) and (ii) only | b. (iii) and (iv) only |
| c. (i), (ii), and (iii) only | d. (i), (ii), (iii), and (iv) |

-
20. Choose the activity that you should not be doing during an earthquake:

- a. If you are indoors, get inside a desk or a table.
- b. If you are outdoors, stay away from trees.
- c. If you are on a beach, get into the sea.
- d. Stay away from windows and light fixtures

-
21. Jack went to buy some ice cubes from the market. The shopkeeper suggested that Jack should carry the ice cubes in a box made of 'X' to his home. What is 'X' made of?

- | | |
|--------------|--------------|
| a. Iron | b. Thermocol |
| c. Cardboard | d. Steel |
-

22. Select the correct option and complete the following sentence:

A car skids along the road and smoke appears to be coming from under the tires. The heat that produces the smoke is caused by _____.

- a. magnetism
- b. sound
- c. friction
- d. light

23. Fill in the blank:

Things like syringes, droppers, and drinking straws generally work on the principle of _____.

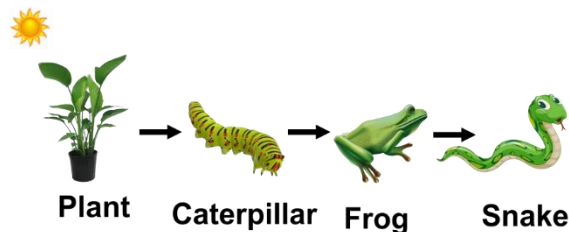
- a. water pressure
- b. pressure on the object
- c. air pressure
- d. pressure outside the object

24. Choose the correct option and complete the following sentence:

_____ nerves are known for the transmission of messages right from the organs of our body to the brains whereas _____ nerves take messages from the brain to the organs of our body.

- a. Sensory, motor
- b. Motor, sensory
- c. Motor, mixed
- d. Mixed, sensory

25. Consider the diagram of a food chain shown below and answer the following question:
Which organisms in this food chain are needed for all the other organisms to survive?



- a. Caterpillar
- b. Frog
- c. Snake
- d. Plant

26. Consider the following statement and choose the correct option:

Statement 1: Light energy is needed to change water from a liquid to a gas.

Statement 2: A person use mechanical energy to pedal a bicycle.

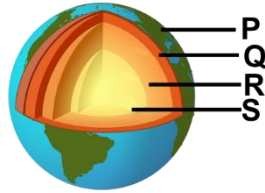
- a. Statement 1 is correct but statement 2 is incorrect.
- b. Statement 1 is incorrect but statement 2 is correct.
- c. Both the statements are correct.
- d. Both the statements are incorrect.

27. Which of the following is not the function of the organ shown in the picture below?



- a. Digestion
- b. Respiration
- c. Fat absorption
- d. Clotting of blood

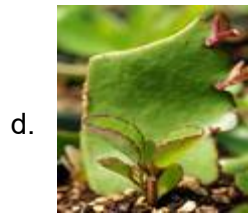
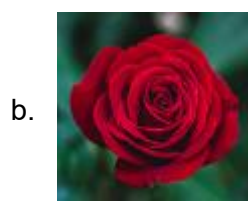
28. In the diagram, the arrow R represents which layer of the Earth?



- a. Mantle
- b. Crust
- c. Outer core
- d. Inner core

29. Choose the correct option:

Which out of the following can one grow through the cutting process?



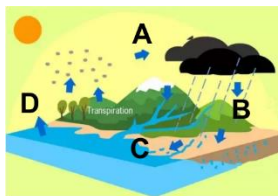
30. Which of the following animals is preparing for a seasonal change in the environment?

- a. A bat flying at night.
- b. A deer drinking water.
- c. An owl eating a mouse.
- d. A squirrel storing nuts.

31. Why do some rings turn our skin greenish when we wear it for a long time?

- a. Acids in our skin react with the metal.
- b. Because that part of the body does not absorb light.
- c. The metal reacts with light and makes our skin green.
- d. The metal does not react with air and hence makes our skin green.

32. In the diagram below, letters A, B, C, and D show processes in the water cycle:
Which letter shows runoff?



- a. A
- b. B
- c. C
- d. D

33. Mary wrote two statements. They are as follows:

1. Lightning is an example of gravitational energy.
2. Solar energy is the energy that we are using up and cannot be recreated in a short span of time.

Which of the above statement(s) is/are true?

- | | |
|---------------------------------|----------------------------------|
| a. Statement 1 only | b. Statement 2 only |
| c. Both the statements are true | d. Both the statements are false |
-

34. Which of the following pairs are wrongly classified?

D: Earth - Closest to the sun

E: Venus- Only planet with no moon

F: Mercury- No atmosphere

G: Jupiter - The stormiest planet in the Solar System

- | | |
|------------|------------|
| a. D and E | b. E and F |
| c. F and G | d. D and G |
-

35. Read the passage below and fill in the blank:

The breakdown of complex food into simple soluble substances that are absorbed by the body is called digestion. Many organs work together and help in digestion.

Physical and chemical digestion begins in the _____.

- | | |
|------------|--------------------|
| a. stomach | b. small intestine |
| c. mouth | d. food pipe |
-

36. Choose the correct option:

Statement A: Sunflower oil is non-renewable.

Statement B: Coal is present in such abundant quantity that it will not be exhausted.

- | | |
|-------------------------------|----------------------|
| a. Only A is correct | b. Only B is correct |
| c. Neither of them is correct | d. Both are correct |
-

37. Read carefully the statements given below and choose the correct option:

Statement 1: All roots grow underground.

Statement 2: Roots that grow underground tend to grow downwards.

- a. Statement 1 is correct but statement 2 is incorrect.
 - b. Statement 1 is incorrect but statement 2 is correct.
 - c. Both the statements are correct.
 - d. Both the statements are incorrect.
-

38. Choose the correct option and complete the following sentence:

A football is kicked by a boy. It rolls on the ground to some distance and stops. The force which stops the ball is _____.

- | | |
|---------------------|------------------------|
| a. muscular force | b. gravitational force |
| c. mechanical force | d. frictional force |
-

39. Which of the following statements is/are true?

1. While soil can germinate plants, dirt is dead and cannot germinate plants.
2. Soil does not help in the growth of plants.
3. The soil is the top layer of the earth's surface, like icing on a cake.
4. Plants draw their water from animals.

- a. 1 and 2 only
b. 3 and 4 only
c. 1 and 3 only
d. 2 and 3 only

40. Read the passage given below and answer the question that follows:

Soil erosion happens when the soil is blown away by the wind or washed away by the rain. Soil erosion can be reduced by building terraces on hillsides, irrigation schemes to overcome droughts, planting more trees to bind the soil together, and using fertilizers in overpopulated areas to make the soil more fertile. It is very important that the farming technique used does not damage the structure of the soil, as this erodes the soil. Good farming techniques include contour ploughing, crop rotation and keeping the soil rich in humus.

- a. planting trees b. good farming techniques
c. crop rotation d. all of these

Scholar Section (Each Question is 2 Marks)

41. The following table shows the function of four human body systems. Which body system has its function correctly stated?

	Body system	Function
1.	Skeletal	Gives shape to the body
2.	Circulatory	Protects vital organs
3.	Digestive	Breaks down our food
4.	Respiratory	Gets rid of carbon dioxide

- a. Only 1
b. Only 2
c. Both 2 and 3
d. 1, 3 and 4

42. Study the experiment set up below:

Five ice cubes were added to each of the containers. The containers were made of different materials but were of the same size. Below each container, a candle is used to heat the ice cubes.

The table below shows the results of the experiment:

Material	Time taken for the ice cubes to melt completely
Porcelain	3 min 20 sec
Ceramic	5 min 30 sec
Glass	1 min 55 sec

What is the possible aim of the above experiment?

- To find out the flexibility of each material.
- To find out if the size of the containers affected the rate of conduction of heat.
- To determine if the different materials affected the time needed to melt all the ice cubes.
- To determine if more candles are needed to conduct the experiment properly.

- 43.** Ana enclosed the leafy branch of a well-watered potted plant in a polythene bag and kept it in sunlight for 5-6 hours to demonstrate the process of transpiration. However, water droplets did not appear inside the polythene bag. What could have been the reason for the failure of the experiment?
- a. She kept the plant in sunlight.
- b. She selected a leafy branch.
- c. She watered the plant.
- d. None of these

- 44.** Four students made the following statements:

Kate: Sheep are sheared in the summer season when they do not need their fleece to keep themselves warm.

Sam: Weaving uses two sets of yarn whereas knitting involves only one yarn.

David: The hair/fur of sheep acts as an insulator and keeps the body of sheep warm

Kevin: The animal fibres are largely made up of proteins.

Which of them is/are incorrect?

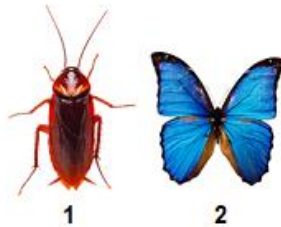
- a. Kate only
b. David only
c. Sam and Kevin only
d. None of them is incorrect

- 45.** Read and point out the property of air that is inferred from these real-life phenomenon:

1. We find it easier to row the boat when the wind is blowing behind us.
2. The wind coming from the back helps in flying kites.
3. When we suck from the straw, the liquid rises in it.

- a. Air has mass.
- b. Air exerts pressure.
- c. Air takes the shape of the container.
- d. Air occupies space.

46. Which of the following characteristics best describes both the animals as shown in the images below?



- 1 has three stages of the life cycle whereas 2 has four stages of the life cycle.
- 1 has four stages of the life cycle whereas 2 has three stages of the life cycle.
- Both 1 and 2 have three stages of the life cycle.
- The baby of both 1 and 2 looks much like full-grown insect except that it has no wings.

47. Different animals use a different method that helps them to run away from their predators. Which out of the following is **NOT** true?

- To distract the predator, the lizard sheds a wriggling tail.
- Crocodiles and lizards crawl on the ground using their legs.
- A snake and a worm crawl on the ground using their legs.
- The grasshopper uses its powerful hind legs that help it to hop away.

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48. Ron has his gums bleeding while he brushes his teeth. There is also a little pain in his teeth. He also feels tired and pain in joints. From the following, choose the disease he is suffering from along with the cause:

- | | |
|-------------------------------------|---------------------------------------|
| a. Scurvy, Deficiency of Vitamin C | b. Anaemia, Deficiency of Vitamin A |
| c. Rickets, Deficiency of Vitamin D | d. Beri-Beri, Deficiency of Vitamin B |

49. Consider the information given below and answer the question that follows:

One hot, summer day it rained very heavily. After the rain, a plastic pan on a picnic table had 2 cm of rainwater in it. Four hours later, all the rainwater in the pan was gone.

Which process caused the rainwater in the pan to disappear as it sat outside in the hot air?

- | | |
|------------------|----------------|
| a. Condensation | b. Evaporation |
| c. Precipitation | d. Erosion |

50. Samrat took two plants i.e. chilli and balsam. He placed the chilli plant beside balsam. He made sure to water the plants every day. What are the factors that can affect the growth of chilli plant?

- | | |
|------------------|---------------------|
| a. Lack of food | b. Lack of sunlight |
| c. Lack of water | d. Excess moisture |

Answer Key

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