



CREST Science Olympiad (CSO)

Previous Year Paper (2021-22)

Class 8

Time Allowed: 1 hour

Maximum Marks: 60

- Additional **10 minutes** will be allotted to fill up information on the OMR Sheet, before the start of the exam.
- Fill in all the mandatory fields clearly on the OMR Sheet.
- There are **2 sections** in the question paper namely the **Practical Science & Achievers' Section** consisting of **40 questions (1 mark each) & 10 questions (2 marks each)**, respectively.
- There is no negative marking. The use of a calculator is not permitted.
- There is **only ONE correct option** to a given question.
- Use **HB Pencil or Blue / Black ball point pen only** for marking the correct choice of answers on the OMR Sheet.
- Rough work is to be done in the space provided in the test booklet. Extra plain sheet may be provided by the school for the rough work.
- The OMR Sheet is to be handed over to the invigilator at the end of the exam.
- No candidate is allowed to carry any textual material, printed or written, bits of paper, any electronic device, etc. inside the examination hall.
- The use of unfair means may result in the cancellation of the exam. Any such instances may be reported at **+91-98182-94134** or **info@crestolympiads.com**

DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

FILL IN THE DETAILS

Student Name: _____

Class: _____ Section: _____

Enrollment No: _____

Practical Science (Each Question is 1 Mark)

1. Fill in the blank:
Bronze statues and articles of copper slowly tarnish in air and turn green. This green colour is due to the formation of _____.
- a. copper carbonate
b. an oxalate
c. copper sulphate
d. copper oxide
2. Which of the following can change its shape?
I. Amoeba
II. Neuron
III. WBC
- a. I only
b. I and II
c. I and III
d. I, II, III
3. Which one of the following is/are included in protoplasm?
I. Nucleus
II. Cytoplasm
III. Plasma membrane
IV. Nucleoplasm
- a. I and II
b. I, II and III
c. II only
d. I, II, III, IV
4. Select the wrongly matched pairs:
- a. Apiculture – Honey bee
b. Sericulture – Fish
c. Dairy farming – Milk
d. Poultry farming – Meat
5. A man is standing not exactly at the centre of two walls. He fires a gun and hears the first echo after 1 s and the second echo after 2 s. If the speed of the sound is 330 m/s. What is the distance between the walls?
- a. 330 m
b. 360 m
c. 420 m
d. 495 m
6. A book rests on a horizontal frictionless surface. A horizontal force of magnitude F is applied. This force produces an acceleration:
- a. Only if F is larger than the weight of the book
b. Only while the book suddenly changes from rest to motion
c. Always
d. Only if the inertia of the book decreases

7. A box is pushed horizontally along a rough surface and constant acceleration is achieved. If the push is stopped, the box will _____.
- slow down and finally stop
 - continue to move at constant speed
 - continue to accelerate at a lower rate
 - stop immediately
8. In the given question, an assertion and a reason are given. Choose the correct option:
Assertion: It is better to use a sharp-tipped nail than a blunt nail.
Reason: The tip with the smallest area produces a higher pressure when a small force is applied.
- Both assertion and reason are correct and reason is the correct explanation of the assertion.
 - Both assertion and reason are correct, but reason is not the correct explanation of the assertion.
 - Assertion is correct, but reason is incorrect.
 - Assertion is incorrect, but reason is correct.
9. In the following question, an assertion and a reason are given. Choose the correct option:
Assertion: Sound waves cannot pass through the vacuum.
Reason: Sound waves are mechanical waves, which require a medium for their propagation.
- Both assertion and reason are correct and reason is the correct explanation of the assertion.
 - Both assertion and reason are correct, but reason is not the correct explanation of the assertion.
 - Assertion is correct, but reason is incorrect.
 - Assertion is incorrect, but reason is correct.
10. Consider the following statements and choose the correct option:
- Red blood cells do not have nuclei so they can move through blood vessels more efficiently.
 - Every person has a unique DNA that can be found in the cells' nuclei.
 - Only some plant cells have cell walls.
 - Sperm cells are produced by the male reproductive system while the egg cells are produced by the female reproductive system.
- Only 1 and 2 are correct
 - Only 1 and 3 are correct
 - 1, 2 and 4 are correct
 - 1, 2, 3 and 4 are correct
11. Choose the correct option and complete the following sentence:
When the distance between the object and the plane mirror increases _____.
- the image remains same
 - the size of the image will become less than the size of the object
 - the distance between the image and the plane mirror increases
 - the distance between the image and the plane mirror decreases

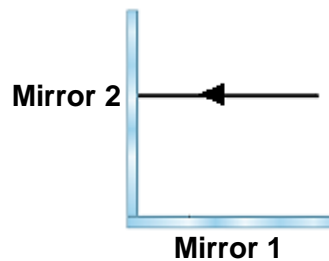
- 12.** What happens when the ends of metal wire are not connected to a battery?
- Electrons move in random directions
 - Electrons move from negative electrode to positive electrode
 - Electrons move from positive electrode to negative electrode
 - Protons move in random direction in such a way that their net movement in a unit volume is zero
- 13.** What happens when two bodies are rubbed against each other?
- They acquire equal and similar charges.
 - They acquire equal and opposite charges.
 - They acquire different charges but in different amounts depending upon their masses.
 - They do not acquire any charge.
- 14.** Which of the following is known as the weak zone around the boundaries of plates underneath the earth, which are prone to slide and cause an earthquake?
- Fault zone
 - Eruption zone
 - Explosive zone
 - Sliding zone
- 15.** Which of the following statements is/are correct about ploughing?
- It facilitates deeper penetration of soil.
 - It maintains the fertility of the soil.
 - It helps in enriching the mixing of organic matter and nutrients evenly.
 - All of these
- 16.** Choose the correct option and complete the following sentence:
The method of zone refining of metals is based on the principle of _____.
- higher melting point of the impurity than that of the pure metal
 - greater mobility of the pure metal than that of the impurity
 - greater solubility of the impurity in the molten state than in the solid
 - greater noble character of the solid metal than that of the impurity
- 17.** If an object in air is viewed from beneath the surface of water below, where does the object appear to be?
- The object appears above its true position.
 - The object appears exactly at its true position.
 - The object appears below its true position.
 - The object cannot be viewed from beneath the water's surface.
- 18.** Which factor is most directly responsible for determining how often a full moon appears?
- Size of the Moon
 - Size of the Earth
 - How quickly the Moon orbits the Earth
 - How quickly the Moon turns on its axis

19. Not all the planets spin on their axis in the same direction, as they go around the Sun. On which planet would you see the sun rise in the west and set in the east?
- Mars
 - Venus
 - Mercury
 - Neptune
20. Identify the correct order of reactivity of metals among the following:
- $\text{Cu} < \text{Fe} < \text{Zn} < \text{Al} < \text{Na}$
 - $\text{Fe} < \text{Zn} < \text{Cu} < \text{Na} < \text{Al}$
 - $\text{Zn} < \text{Cu} < \text{Fe} < \text{Al} < \text{Na}$
 - $\text{Cu} < \text{Zn} < \text{Al} < \text{Na} < \text{Fe}$
21. Which of the following statements is/are true?
- CO_2 is used in the fire extinguisher.
 - Global warming can cause acid rain.
 - Burning of coal and diesel releases sulphur dioxide (SO_2) gas.
 - Both a and c
22. Consider the following clues about an element 'X':
Clue 1: X is soft and can be cut easily with a knife.
Clue 2: It is very reactive and cannot be kept open in the air.
Clue 3: It reacts vigorously with water.
Identify 'X':
- Magnesium
 - Potassium
 - Phosphorus
 - Aluminium
23. Identify the species (of plants and animals) which are found exclusively in a particular area:
- Epidemic species
 - Pelagic species
 - Pandemic species
 - Endemic species
24. Identify the human disease that can be prevented by the same hormone which brings about metamorphosis in frogs:
- Diabetes
 - Goitre
 - Anaemia
 - Rickets
25. A boy runs his toy car on a dry marble floor, wet marble floor, newspaper and towel spread on the floor. The force of friction acting on the car on different surfaces in increasing order will be:
- Wet marble floor < Dry marble floor < Towel < Newspaper
 - Newspaper < Towel < Dry marble floor < Wet marble floor
 - Towel < Newspaper < Dry marble floor < Wet marble floor
 - Wet marble floor < Dry marble floor < Newspaper < Towel
26. The friction between the two surfaces does not depend which of the following?
- The amount of surface area of the two objects which is in contact with each other.
 - The weight of the object which tends to move on the surface of another object.
 - The degree of smoothness of the surface of two objects in contact with each other.
 - The degree of roughness of the surface of two objects in contact with each other.

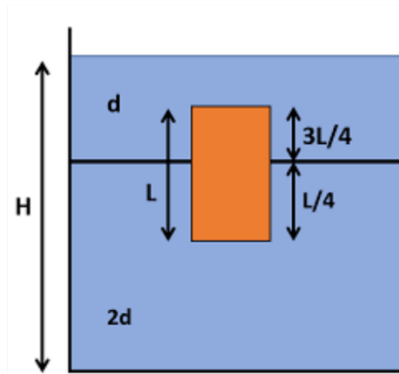
27. The Kyoto Protocol is associated with:
1. reduction in the use of chlorofluorocarbons
 2. reduction in the emission of greenhouse gases
 3. reduction in the cutting of forest trees
 4. reduction in pollution of fresh water sources
- a. Only 1
b. Only 2
c. Both 2 and 4
d. Both 1 and 3
28. Four students made the following statements:
David: Shape and size of cells are related to a specific function.
Ana: Each cell has its own capacity to perform.
Robert: Some cells have changing shapes.
Sara: Same type of cells are present in all body tissues.
Which among the above students made the correct statement(s)?
- a. Robert only
b. Robert and David only
c. Sara and Ana only
d. David, Ana and Robert
29. An incident ray strikes a plane mirror at an angle of 15° with the mirror. Identify the angle between the incident ray and reflected ray:
- a. 15°
b. 30°
c. 150°
d. None of these
30. Which of the following pair doesn't have the same dimensions?
- a. Force and pressure
b. Pressure and stress
c. Impulse and momentum
d. Work and energy
31. Consider the following statements and choose the correct option:
Statement 1: Mars is also called morning star or evening star.
Statement 2: Jupiter has the largest satellite.
- a. Statement 1 is correct and statement 2 is incorrect.
b. Statement 1 is incorrect and statement 2 is correct.
c. Both the statements are correct.
d. Both the statements are incorrect.
32. In the given question, an assertion and a reason are given. Choose the correct option:
Assertion: In heavy vehicles, diesel is used as a fuel.
Reason: Diesel has high power and is convenient.
- a. Assertion and reason are correct and reason is the correct explanation of the assertion
b. Assertion and reason are correct but reason is not the correct explanation of the assertion
c. Assertion is correct but reason is incorrect
d. Assertion is incorrect but reason is correct

- 33.** In the following question, an assertion and a reason are given. Choose the correct option:
Assertion: A normal human eye can clearly see all the objects at a different distance.
Reason: The human eye has the capacity to suitably adjust the focal length of its lens to a certain extent.
- both assertion and reason are correct and reason is the correct explanation of the assertion.
 - both assertion and reason are correct, but reason is not the correct explanation of the assertion.
 - assertion is correct, but the reason is incorrect.
 - both assertion and reason are correct.
- 34.** The speed of sound in air and sea-water are given to be 340 m/s and 1440 m/s respectively. A ship sends a strong signal straight down and detects its echo after 1.5 secs. What is the depth of the sea at that point?
- 2.16 km
 - 1.08 km
 - 0.51 km
 - 0.255 km
- 35.** Stars twinkle but planets do not twinkle.
Which of the following is the reason for the above-given statement?
- Stars emit their own light but planets receive light from the stars.
 - Stars do not form a part of the solar system.
 - Stars form a point source of light while planets are considered as a collection of a large number of point sources of light.
 - During refraction of starlight from the atmosphere, starlight bends more towards the normal as compared to the planets.
- 36.** Which of the following is an incorrect statement?
- Velocity of sound is least in solids.
 - When sound travels through air, the temperature of air is constant.
 - When sound travels through air, the air molecules vibrate longitudinally.
 - Under similar conditions of temperature and pressure, the velocity of sound is greater than that in oxygen.
- 37.** Consider the following statements about the placenta and choose the correct option:
- It is an intimate connection between fetal membrane and uterine wall.
 - Fetal blood comes very close to the maternal blood in the placenta.
 - Fetus gets nutrients, oxygen, etc. from the maternal blood through the placenta and gives off wastes, CO_2 etc.
- Only (ii) correct
 - Only (i) and (ii) are correct
 - Only (iii) is correct
 - All of them are correct

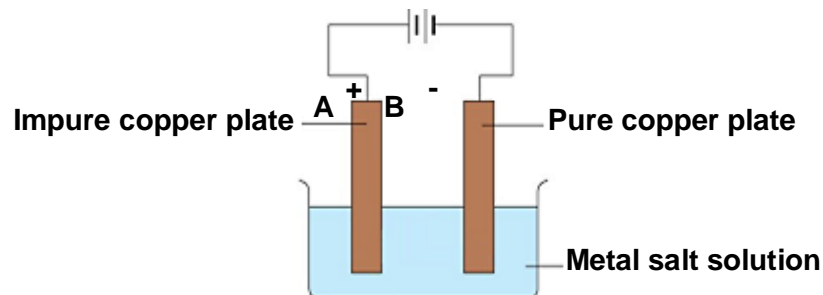
38. A ray of light strikes a silvered surface inclined to another one at an angle of 90° . Then the reflected ray will turn through _____.



- a. 0° b. 45°
 c. 90° d. 180°
39. In a container (cross-sectional area A) a homogeneous solid cylinder of length L ($L < H/2$) as shown in the figure), cross-sectional area $A/5$ is immersed such that it floats with its axis vertical at the liquid-liquid surface with length $L/4$ in the denser liquid (density $= 2d$) as shown in the figure. The lower density liquid (density $= d$) is open to the atmosphere. The density D of solid is given by:



- a. $4d/5$ b. $4d$
 c. $d/5$ d. $5d/4$
40. The diagram shows the process of purification of copper metal. A thick copper plate A of impure copper and a thin pure copper plate B are immersed in a metal sulphate solution and an electric current is passed through it.
1. Which electrode is connected to the negative terminal of the battery?
 2. What is liberated at the cathode?



- a. 1-Impure copper, 2-Pure copper b. 1-Pure copper, 2-Pure copper
 c. 1-Pure copper, 2-Impure copper d. 1-Impure copper, 2-Impure copper

Achiever's Section (Each Question is 2 Marks)

41. Which among the following salts produces maximum number of metal ions per molecule when dissolved in a suitable solvent?
- Aluminium phosphate, AlPO_4
 - Magnesium phosphate, $\text{Mg}_3(\text{PO}_4)_2$
 - Sodium biphosphate, Na_2HPO_4
 - Aluminium dihydrogen phosphate, $\text{Al}(\text{H}_2\text{PO}_4)_3$
42. A sound wave travels from air to glass. The velocity of sound in air is v_a and the wavelength is λ_a . What is the velocity in glass, if the wavelength of the sound wave in the glass is λ_g ?
- $\lambda_g v_g/v_a$
 - $\lambda_g v_a/\lambda_a$
 - $\lambda_a v_a/v_g$
 - $\lambda_a v_a/\lambda_g$
43. In the following question, an assertion and the reason are given. Choose the correct option:
Assertion: When visible light is passed through a prism, violet colour is seen at the bottom of the screen.
Reason: Prism has the highest refractive index for violet light.
- Assertion and the reason are true and reason is the correct explanation of the assertion
 - Assertion and the reason are true, but reason is not the correct explanation of the assertion
 - Assertion is true but reason is false
 - Both assertion and reason are false
44. Which of the following is/are a nitrifying bacterium?
- Nitrosomonas
 - Pseudomonas
 - Nitrobacter
 - Lactobacillus
- Only 1
 - Both 1 and 4
 - Both 1 and 3
 - Both 2 and 4
45. Which of the following is the best explanation of the statement given below?
Metabolism of glucose is considered as combustion.
- It involves reaction of glucose molecule with oxygen.
 - Products obtained are CO_2 and H_2O therefore it is a combustion reaction occurs at slow and steady rate.
 - This reaction occurs as rapid as combustion reaction.
 - This reaction releases enormous amount of energy.

46. Which of the following statement is/are false?

1. Cellulose is made up of glucose units.
2. Weaving and knitting are two processes to get plastic.
3. Plastics get corroded easily.
4. Plastics are not polymers.

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

47. Read the following questions and choose the correct option:

- i. Under similar conditions, in which of the following gases will the speed of sound be the least?
- ii. The velocity of sound in a gas is 4 times that in the air at the same temperature. When a tuning fork is sounded in air a wave of frequency 480 Hz and wavelength λ_1 is produced. The same fork is sounded in the gas and if λ_2 is the wavelength of the wave, Find λ_2 / λ_1 .

- a. i – Nitrogen, ii – 2
b. i – Sulphur dioxide, ii – 4
c. i – Carbon dioxide, ii – 1/2
d. i – Oxygen, ii – 4

48. Which of the following is/are the correct statement(s)?

1. Alloyed iron is more durable.
2. Alloyed iron is more shining.
3. Alloyed iron is more prone to rusting.
4. Rust is loosely attached to the metal surface.

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

49. Choose the right option to fill in the blanks below:

To electroplate an article with nickel requires a/an _____(i)_____ which must be a solution containing _____(ii)_____ ions. The article to be plated is placed at the _____(iii)_____ of the cell in which the plating is carried out. The _____(iv)_____ of the cell is made from pure nickel. The ions which are attracted to the negative electrode and discharged are called _____(v)_____.

- a. (i) – electrolyte, (ii) – nickel, (iii) – cathode, (iv) – anode, (v) – cations
- b. (i) – solute, (ii) – copper, (iii) – anode, (iv) – cathode, (v) – anions
- c. (i) – electrolyte, (ii) – nickel, (iii) – anode, (iv) – cathode, (v) – anions
- d. (i) – solvent, (ii) – nickel, (iii) – anode, (iv) – cathode, (v) – cations

50. Match List I (Fuel gases) with List II (Major constituents) and select the correct answer using the codes given below:

List I (Fuel Gas)		List II (Major Constituent)	
I.	CNG	1.	Carbon monoxide, hydrogen
II.	Coal gas	2.	Butane, propane
III.	LPG	3.	Methane, ethane
IV.	Water gas	4.	Hydrogen, methane, carbon monoxide

- a. I – 3, II – 1, III – 2, IV – 3
b. I – 3, II – 4, III – 2, IV – 1
c. I – 2, II – 4, III – 3, IV – 1
d. I – 2, II – 1, III – 3, IV – 4

Answer Key

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