

Bhavan's Science Olympiad (BSO) – 2023

Class:- 8
Time:- 1 Hr.

Subject:- Science
Total :- 50 Marks

INSTRUCTIONS:-

- **Question no 1 to 40 Carries 1 Mark.**
- **Question no 41 to 45 Carries 2 Marks.**

1. A body is vibrating 6000 times in one minute. If the velocity of sound in air is 360 m/s, find the wavelength of waves produced.
(a) 100 m (b) 3.6 m (c) 16.6 m (d) None of these.
2. The commonly used safety fuse wire is made of
(a) Copper (b) Nickel (c) Lead (d) An alloy of tin and lead
3. The unit of e.m.f of a cell is
(a) Dyne (b) Volt (c) Ampere (d) Joule.
4. How many 100 watt bulbs may be safely used on 220 volt with five ampere fuse?
(a) 22 (b) 11 (c) 10 (d) 5
5. Two vessels A and B have the same base area and contain water up to the same height, but the mass of water in vessel A is four times that of water in vessel B. the ratio of pressure on the base of vessel A to that on the base of vessel B is
(a) 4:1 (b) 2:1 (c) 1:1 (d) 16:1

6. Match column I with column II and select the correct answer:

Column- I	Column- II
A. lighting	P. collection of tiny water droplets
B. thunder	Q. falling of water from the sky
C. Clouds.	R. loud sound with lighting
D. Rain	S. flash of light

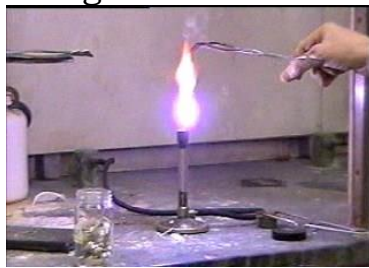
- (a) A-P,B-Q,C-R,D-S (b) A-S,B-R,C-P,D-Q
(c) A-Q,B-P,C-R,D-S (d) A-P, B-R, C-S, D-S.
7. What is the mass of moon as compared to that of earth?
(a) $1/18^{\text{th}}$ (b) $1/6^{\text{th}}$ (c) $1/81^{\text{th}}$ (d) $1/60^{\text{th}}$
 8. Which of the following option is correct?
(a) 1 watt = 1 joule x 1 second (b) 1 watt = 1 joule per second
(c) 1 watt x 1 joule = 1 second (d) 1 watt x 1 joule x 1 second=1
 9. Latent heat of vaporization of water boiling under normal pressure is
(a) 470 cal/g (b) 540 cal/g (c) 580 cal/g (d) 640 cal/g
 10. In the case of concave mirror the image coincides with the object, when the object is placed at
(a) Infinity (b) Focus
(c) Centre of curvature (d) At any point.

11. Which of the following is the relation between focal length (f) and radius of curvature(R)
 (a) $R=f/2$ (b) $R=2f$ (c) $R=f$ (d) None of these.
12. During the charging of a lead-acid battery, the density of sulphuric acid
 (a) Increases (b) Decreases
 (c) Remains the same (d) Becomes zero
13. Consider the following reaction

$$\text{HCl} + \text{H}_2\text{O} \rightleftharpoons \text{H}_3\text{O}^+ + \text{Cl}^-$$
 In this reaction water acts as a/an
 (a) Acid (b) Base (c) Amphoteric substance (d) Salt.
14. Which of the following statements about oxygen gas is not true?
 (a) Oxygen is a colorless and odorless gas.
 (b) Color of pure liquid oxygen is blue.
 (c) Oxygen gas is slightly heavier than air.
 (d) Oxygen gas is slightly lighter than air.
15. Which of the following options is a constituent of the substance applied on the head of the match stick?
 (a) Potassium chlorate (b) Phosphorous pent oxide
 (c) Potassium chloride (d) All the above.
16. Complete the following reaction

$$? + \text{NaOH} \xrightarrow{\text{CaO}} \text{CH}_4 + \text{Na}_2\text{CO}_3$$
 (a) CH_3COOH (b) CF_3COOH
 (c) $\text{CH}_3\text{CH}_2\text{COOH}$ (d) CH_3COONa
17. We have a mixture of four liquids a, b, c and d with boiling points 50°C , 70°C , 80°C and 100°C respectively. Which liquid will separate out first during fractional distillation?
 (a) a (b) d (c) c (d) d
18. Directions: fill in the given blanks.
 The taste of----- will be sour and that of ----- will be bitter.
 (a) NH_4OH , HCl (b) $\text{Ca}(\text{OH})_2$, H_2SO_4
 (c) NaOH , HCN (d) CH_3COOH , NH_4OH
19. When acidity is produced in our stomach, we take antacid which gives relief. Identify the type of reaction in this case.
 (a) Redox reaction. (b) Neutralization reaction.
 (c) Photochemical reaction. (d) Reversible reaction.
20. Which of the following combine to form smog?
 i. Smoke
 ii. CFCs
 iii. Fog
 iv. Dust
 (a) i and ii (b) ii and iii (c) i and iv (d) iii and iv.

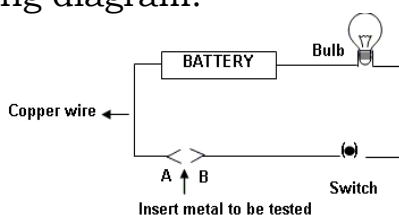
21. Observe the activity in the image below and answer the question that follows.



Which of the following statements are incorrect?

- i. Burning of the magnesium ribbon is a combustion reaction.
ii. Magnesium combines with oxygen.
iii. The reaction is exothermic
iv. The ribbon is held in the flame to initiate the reaction
- (a) i and iv
(b) ii and iii
(c) All the statements are correct.
(d) All the statements are incorrect.

22. Observe the following diagram:



In an activity to test the electrical conductivity of different substances, they were placed across the gap AB in the circuit and the following observations were recorded.

i. Sulphur	Bulb lights up
ii. Graphite	Bulb lights up
iii. Copper block	Bulb lights up
iv. Diamond	Bulb does not lights up
v. Gold	Bulb does not lights up
vi. Silver	Bulb does not lights up

Which of the above observations is/are incorrect?

- (a) Only ii , v and vi (b) Only vi
(c) Only I,v and vi (d) Only v and vi

23. Nisha has four dresses, made up of four different fabrics:

A is made of cotton, B is of silk, C is of rayon and D is of polyester.

Which dress should she wear during a journey so that it does not get wrinkled easily?

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

24. Which instrument is fitted in automobiles to reduce the harmful emissions from its exhaust?

- (a) Catalytic converter
(b) Biogas plant
(c) Electrostatic precipitator
(d) Sedimentation tank

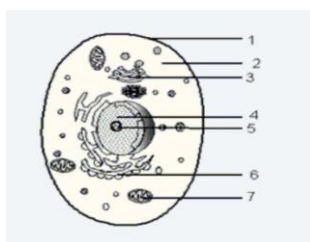
25. Which-of the following hormones controls the stress?

- (a) Insulin (b) Thyroxin (c) Adrenaline (d) Estrogen

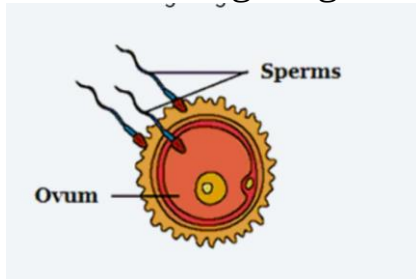
26. Sexual reproduction involves the fusion of ovum and sperm. In frogs the fusion of male and female gametes occurs

- (a) In female body (b) In male body
(c) From the oviduct (d) In water.

27. Which of the following is a correct pair of organelle and its function?
- (a) Mitochondria- production of ATP
 - (b) Golgi body- synthesis of protein
 - (c) Lysosome – synthesis of fats and lipids
 - (d) Ribosome – destruction of foreign substances.
28. What is the flattened disc like structures present in golgi apparatus known as?
- (a) Grana
 - (b) Cisterns
 - (c) Stroma
 - (d) Vacuoles
29. Which of the given options represents the correct labelling of the diagram shown

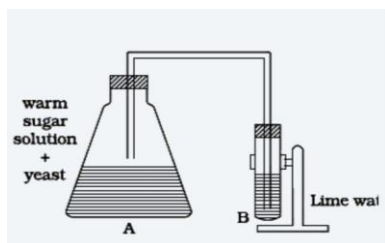


- (a) (1) cell wall, (2) cytoplasm, (3) endoplasmic reticulum, (4) mitochondria, (5) nucleolus, (6) Golgi apparatus, (7) nucleus.
 - (b) (1) cell wall, (2) cytoplasm, (3) Golgi apparatus, (4) nucleus, (5) nucleolus, (6) endoplasmic reticulum, (7) mitochondria
 - (c) (1) plasma membrane, (2) cytoplasm, (3) Golgi apparatus, (4) nucleus, (5) nucleolus, (6) endoplasmic reticulum, (7) mitochondria
 - (d) (1) plasma membrane, (2) cytoplasm, (3) Golgi apparatus, (4) nucleolus, (5) nucleus, (6) mitochondria, (7) endoplasmic reticulum.
30. Refer to the figure given below:



The process shown in the figure is ----- and results in the formation of-----

- (a) Placentation; embryo
 - (b) Fertilization; zygote
 - (c) Embryogenesis; embryo
 - (d) Fertilization; blastula
31. I was a flightless bird. My large curved beak was one of my most distinctive features. I inhabited the island of Mauritius, but now no member of my species survives. Identify me.
- (a) Great Indian Bustard.
 - (b) Dodo
 - (c) Ostrich
 - (d) Vulture
32. For which animal is Corbett national Park famous.
- (a) Tiger
 - (b) Lion
 - (c) One – horned rhinoceros
 - (d) Black buck
33. Refer to the following diagram and select the correct answer from the options given below



- (a) In A yeast feeds on sugar to release alcohol and carbon dioxide.
- (b) The process that occurs in A is called aerobic respiration
- (c) The gas that is released in A can turn lime water milky on eating B
- (d) The gas that is released in A can turn lime water milky on eating B
- (e) Both A and C are correct.

34. Which of the following diseases generally occurs in summer during the rainy season due to bad personal hygiene and poor sanitation?
- (a) Common cold (b) Polio
(c) Rabies (d) Gastroenteritis
35. The poisonous chemicals used to kill weeds are called weedicides. Which of the following is/ are not weedicides?
- A. 2,4-D
B. NPK
C. Butachlor
- (a) Only A (b) Only A and B (c) Only B (d) Only B and C.
36. Ram wants to know that why is he similar to his father, although his younger brother does not show any similarity either with his father or with him. Which branch of science will help him to solve this mystery?
- (a) Geology (b) Biology (c) Histology (d) Genetics.

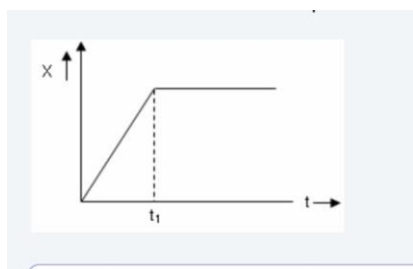
37. In the following table, match the synthetic materials in the first column with their properties in the second column:

1. Bakelite	(i) Fire –resistant
2. Melamine	(ii) deformable
3. Teflon	(iii) Poor conductor of electricity
4. PVC	(iv) Non -stick

- (a) 1-(i), 2-(ii), 3-(iii), 4-(iv) (b) 1-(iii), 2-(i), 3-(iv), 4-(ii)
(c) 1-(ii), 2-(i), 3-(iii), 4-(iv) (d) 1-(iv), 2-(ii), 3-(i), 4-(iii)
38. Liquefied petroleum gas consists mainly of
- (a) Methane (b) Carbon monoxide
(c) Butane (d) Nitrogen
39. Phobos and deimos are natural satellites of
- (a) Venus (b) Saturn (c) Jupiter (d) Mars.
40. A train travels the first 15 km at a uniform speed of 30km/hr, the next 75 km at a uniform speed of 50 km/hr and the last 10 km at a uniform speed of 20 km/hr. calculate the average speed for the entire journey.
- (a) 100km/hr (b) 40km/hr (c) 75km/hr (d) 20km/hr

ACHIEVER'S SECTION

41. Two plane mirrors are inclined with respect to each other at some angle. A ray of light is incident at 45° on one after reflection from the second mirror., it retraces its path. The angle between the mirrors is
- (a) 30° (b) 45° (c) 60° (d) 90°
42. The figure shows the displacement-time graph of a particle moving along x-axis. Which of the following statements will describe the motion of the particle correctly?



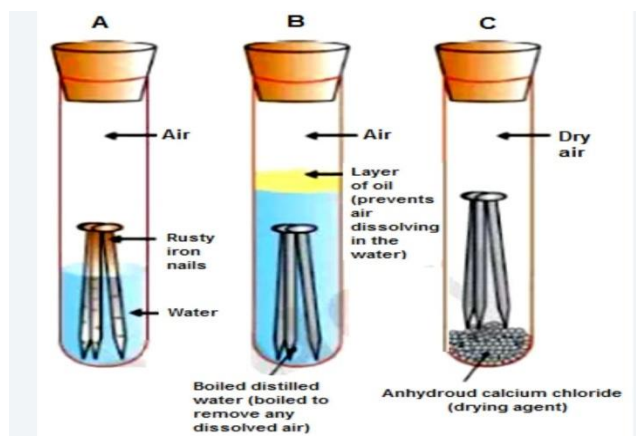
- (a) The particle is moving continuously
(b) The particle moves with a constant velocity upto time t_1 and then stops.
(c) The velocity of the particle increases up to time t_1 and then becomes constant.
(d) The particle is at rest.

43. Read the given passage and fill in the blanks by choosing an appropriate option.

Cellulose is a natural occurring fibre. The walls of a ----- (i) are made of cellulose. It is used in making the synthetic fibre----- (ii) which is resemble the most expensive natural fibre----- (iii) in appearance.

- (a) (i) Animal cell, (ii) cotton, (iii) animal fibre.
- (b) (i) Animal cell, (ii) silk, (iii) synthetic wool.
- (c) (i) Animal cell, (ii) acrylic, (iii) artificial wool.
- (d) (i) plant cell, (ii) rayon, (iii) silk.

44. An apparatus was set up to determine the conditions essential for rusting of iron as shown below:



Observe the image shown above and analyse which of the following statements is true.

- (a) Rusting will take place only in test tube B.
- (b) Rusting will take place both in test tubes A and B.
- (c) Rusting will take place both in test tubes B and C.
- (d) Rusting will take place only in test tube A.

45. Study the following table and select the correct option for P, Q, R and S.

Disease	Causative microorganism	Mode of transmission
Tuberculosis	Bacteria	P
Q	Bacteria	Water/food
R	Virus	Water
Malaria	S	Mosquito

- (a) P: air; Q: cholera; R: hepatitis; S: protozoan
- (b) P: water; Q: typhoid; R: chickenpox; S: virus
- (c) P: water; Q: measles; R: typhoid; S: bacterium
- (d) P: food; Q: AIDS; R: chicken pox; S: protozoan