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Level - 1 : All Level-1 successful* participants will get certificate, apititude report and online subscription, and school toppers will be eligible for school hero medals.

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* # See prospectus/website for details

EHF NATIONAL INTERACTIVE SCIENCE OLYMPIAD

N I S O

10 Class | **A1** Paper Code

L E V E L - 1

1. You are allowed additional 10 minutes to fill the required details in the **RESPONSE SHEET (OMR). STUDENTS OF CLASS 1 & 2 HAVE TO UNDERLINE** THE CORRECT ANSWER IN THE QUESTION PAPER ITSELF. THEY ARE NOT REQUIRED TO USE THE RESPONSE SHEET (OMR). THEY HAVE TO FILL THEIR NAME, ROLL NUMBER, CLASS, SCHOOL NAME IN THE SPACE PROVIDED IN THE QUESTION PAPER.
2. The question paper is made as per syllabus guidelines & pattern given in the information Booklet. The Question Paper for Classes 1 to 6 contains 25 Questions each to be answered in 40 minutes. The Question paper for classes 7 to 12 contains 50 Questions each to be answered in 60 minutes. All questions are compulsory. Further instructions are given in the instruction letter to the teacher.
3. Use the response sheet to mark your responses by darkening the required circle. The response sheet has to be returned to the foundation, duly filled in. THE STUDENT CAN RETAIN THE QUESTION PAPER EXCEPT FOR CLASSES 1 AND 2.

GENERAL IQ

1. The last digit of the number 4^{44} is
(1) 8 (2) 4
(3) 0 (4) None of these

2. A hockey team lost every fifth game and won 6 more than it lost. There are more draws. How many games did the team win?
(1) 7 (2) 9
(3) 8 (4) None of these

3. Which statement is correct for 10(a+20) = 30(a–40)?
(1) a < 50 (2) a < 70
(3) 50 < a < 100 (4) None of these

4. In the equation, $y = 9x^2 - 1$,
what is the value of x when y = 35?
(1) It is greater than 9 (2) 2
(3) 4 (4) None of these

5. You have two buckets, one with 5 litres of milk and the other with 5 litres of water. If you pour 1 litre of water into the milk and then return 1 litre of the mixture to the water bucket, what are the proportions of water and milk in the first bucket?
(1) $\frac{2}{11}$ (2) $\frac{1}{6}$
(3) $\frac{2}{9}$ (4) None of these

6. Find the sum of all the elements of this finite geometric sequence:
1, 2, 4, 8, 16, 32, 64, ... 1024.
(1) 2024 (2) 2047
(3) 4096 (4) None of these

7. Running at a speed of 60 km per hour, a train passed through a 1.5 km long tunnel in two minutes. What is the length of the train?
(1) 250 m (2) 500 m
(3) 1000 m (4) None of these

8. In how many ways can four children be made to stand in a line such that two of them, A and B are always together?
(1) 6 (2) 12
(3) 18 (4) None of these

9. In a meeting, the map of a village was placed in such a manner that south-east becomes north, north-east becomes west and so on. What will south become?

(1) North (2) North-east

(3) West (4) None of these

10. How many numbers lie between 300 and 500 in which 4 comes only one time?

(1) 99 (2) 100

(3) 110 (4) None of these

GENERAL SCIENCE

11. Plasma state consists of super _____ and super _____ particles.

(1) Weak, excited (2) Energetic, excited

(3) Energetic, liquid (4) None of these

12. How does a fluorescent tube and neon bulb glow?

(1) The gas inside them liquidifies, gets charged when electrical energy flows through it. This charging up creates a plasma glowing inside the tube or bulb.

(2) The gas inside them cools, gets uncharged when electrical energy flows through it. This uncharging creates a plasma glowing inside the tube or bulb.

(3) The gas inside them gets ionised, gets charged up when electrical energy flows through it. This charging up creates a plasma glowing inside the tube or bulb.

(4) None of these

13. After a hot sunny day, people sprinkle water on the roof or open ground because _____ of water helps to cool the hot surface.

(1) Latent heat of fusion

(2) Latent heat of vaporisation

(3) Latent heat of radiation

(4) None of these

14. In which year the Indian Scientist, Satyendra Nath Bose has done some calculations for a fifth state of matter?

(1) 2001

(2) 2002

(3) 1920

(4) None of these

15. While searching for various atomic mass units, scientists intially took 1/16 of the mass of an atom of naturally occuring oxygen as one unit. What was the reason for this?

(1) Oxygen reacts with large number of elements and form compounds.

(2) The atomic mass gives masses of elements in whole number.

(3) Both (1) and (2)

(4) None of these

16. What is relative atomic mass of an element?

(1) It is the average relative mass of an element with respect to an atom of carbon-12 taken as 12 U.

(2) It is the total sum of mass of an element with respect to an atom of carbon-12 taken as 12 U.

(3) It is the average relative mass of an element with respect to an atom of carbon-14 taken as 14 U.

(4) None of these

17. Carbon-12 atom has_____.

(1) 6 electrons, 6 protons, 6 neutrons

(2) 6 electrons, 12 protons, 6 neutrons

(3) 12 electrons, 6 protons, 6 neutrons

(4) None of these

18. Chadwick got the Nobel Prize for the discovery of _____.

(1) Protons (2) Neutrons

(3) Electrons (4) None of these

19. Mass number is equal to the_____.

(1) number of protons + number of electrons

(2) number of protons + number of neutrons

(3) number of neutrons + number of electrons

(4) None of these

20. The less stained central part of onion peel cell is_____.

(1) Nucleus (2) Cytoplasm

(3) Vacuole (4) None of these

21. Which one of the following is the correct sequence for preparing a mount of onion peel ?

(1) (i) take out onion peel (ii) keep the peel on the slide (iii) add a few drop of glycerine on it (iv) add few drops of safranin stain (v) cover it up with a coverslip

(2) (i) take out onion peel (ii) keep the peel in water in a petridish (iii) add a few drops of safranin stain and transfer to a slide (iv) add a drop of glycerine (v) cover it up with a coverslip

(3) (i) take out onion peel (ii) Keep it on a slide and add safranin stain (iii) transfer it to water in a petridish (iv) remove water and add glycerine (v) cover it up with a coverslip

(4) None of these

22. Given below are four operations for preparing a temporary mount of human cheek cells

(i) taking scraping from inner side of cheek and spreading it on a clean slide.

(ii) putting a drop of glycerine on the material.

(iii) adding 2-3 drops of methylene blue.

(iv) rinsing the mouth with fresh water and disinfectant solution.

The correct sequence of these operation is

(1) i, ii, iii, iv (2) iv, i, iii, ii

(3) iv, i, ii, iii (4) None of these

23. Which meristem is present at the base of the leaves or internodes on twigs?
(1) Apical meristem (2) Cambium
(3) Intercalary meristem (4) None of these

24. Which of the following statements is incorrect?
(1) Some tissues in plants divide throughout the life.
(2) Cell growth in animals is more uniform as compared to plants.
(3) Animals have more dead tissues as compared to plants.
(4) None of these

25. What are the identifying features of meristematic tissues?
(1) Thick cellulose wall, small vacuoles, dense cytoplasm, small nuclei.
(2) Thin cellulose wall, almost no vacuoles, dense cytoplasm, prominent nuclei.
(3) Thin cellulose wall, no vacuoles, sparse, cytoplasm, prominent nuclei.
(4) None of these

26. Taxonomic hierarchy refers to:
(1) A list of botanists or zoologists who have worked on taxonomy of a species or group.
(2) A group of senior taxonomists who decide the nomenclature of plants and animals.
(3) Step-wise arrangement of all categories for classification of plants and animals.
(4) None of these

27. Which one of the following statements is incorrect?
(1) Viviparity is the reproductive pattern shown by most mammals.
(2) In viviparity, a shell does not form around the egg.
(3) Viviparity is not found in species of lizards and snakes.
(4) None of these

28. Radial symmetry is generally exhibited by which animals?
(1) Which are attached with substratum
(2) Which are aquatic
(3) Which have ciliary feeding
(4) None of these

29. What are the various effects of force?
(1) It can change the speed of an object making it move faster or slower.
(2) It can change the direction of motion of an object.
(3) It can change the shape of an object.
(4) All of these

30. Force can be defined from
(1) Newton's first law of motion
(2) Newton's second law of motion
(3) Newton's third law of motion
(4) None of these

31. The value of acceleration due to gravity at the poles
(1) Is more than at the equator
(2) Same as that at the equator
(3) Is less than that at the equator
(4) None of these

32. Weight of an object on the surface of the moon is
(1) 1/5 th that on the surface of the earth
(2) 1/3 that on the surface of the earth
(3) 1/6 that on the surface of the earth
(4) None of these

33. The time of ascent when measured from the point of projection of a body projected upwards is
(1) Time of ascent > Time of descent
(2) Time of ascent = Time of descent
(3) Time of ascent < Time of descent
(4) None of these

34. Mike applied 10 N of force over 3 m in 10 seconds. Joe applied the same force over the same distance in 1 minute. Who did more work?
(1) Mike (2) Joe
(3) Both did the same work (4) None of these

35. Mike performed 5 j of work in 10 secs. Joe did 3 j of work in 5 sec. Who produced more power?
(1) Mike produced more power
(2) Joe produced more power
(3) Both produced the same amount of power
(4) None of these

36. Work done by a body from Force-distance curve is
(1) Slope of the curve
(2) Area under the curve
(3) Line parallel to the distance axis
(4) None of these

37. A stone rubbed on a rough surface and placed on the skin will show heating sensation because
(1) Friction causes heat
(2) Heat cannot flow from the skin to the stone
(3) Heat flows from the stone to skin
(4) None of these

38. Compression is a region of
(1) High pressure (2) Low pressure
(3) Atmospheric pressure (4) None of these

39. Sound waves are
(1) Transverse in nature
(2) Longitudinal in nature
(3) Electromagnetic in nature
(4) None of these

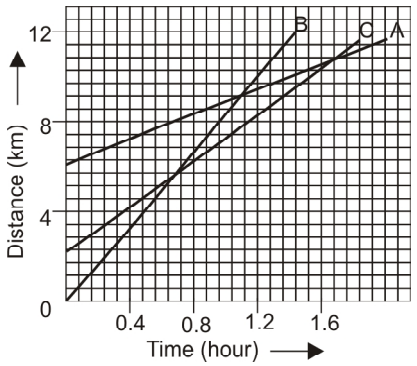
40. The distance between any two compressions or rarefactions in a longitudinal wave is

(1) Wavelength (2) Thrice the wavelength

(3) Twice the wavelength (4) None of these

INTERACTIVE SECTION

The following shows the distance-time graph of three objects A,B and C. Study the graph and answer the following questions (42 to 44):



41. Which of the three objects is travelling the fastest?

(1) A (2) B

(3) C (4) None of these

42. How far has C travelled when B passes A?

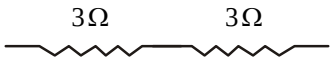
(1) 6 km (2) 4.4 km

(3) 7 km (4) None of these

43. How far has B travelled by the time it passes C?

(1) 6.28 km (2) 5.28 km

(3) 4.28 km (4) None of these

44. 

is the same as:

(1) 2/3 Ω (2) 3/2 Ω

(3) 6 Ω (4) None of these

45. What is Organ Specific Manifestation?

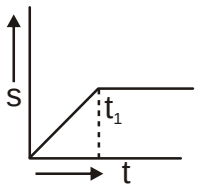
(1) When the microbe affects the same organ or an organ of the same system as the point of its entry.

(2) When the microbe affects an entirely different organ as its point of entry.

(3) When the microbe affects all the different organs as its point of entry.

(4) None of these

46. The s-t graph shown in the figure represents:



(1) Velocity is continuously changing

(2) Instantaneous velocity

(3) It travels with constant speed upto time t, and then stops

(4) None of these

47. Which is the oldest breeding method?

(1) Hybridization (2) Introduction method

(3) Both (1) & (2) (4) None of these

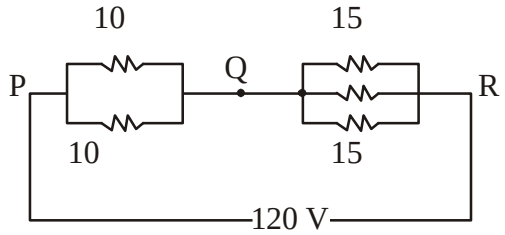
48. Match the phytohormones given in column I with their functions given in column II. Choose the answer with correct combination of alphabets.

Column-I (Pytohormones)	Column-II (Functions)
i. auxins	p. breaking seed dormancy
ii. gibberellins	q. inducing fruit ripening
iii. cytokinins	r. formation of abscission layer
iv. ethylene	s. root intiation
	t. chloroplast development and chlorophyll synthesis

	(i)	(ii)	(iii)	(iv)
(1)	p	r	q	s
(2)	r	s	p	t
(3)	s	p	t	q

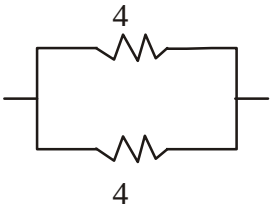
(4) None of these

49. Five resistors are connected as shown and the combination is connected to a 120 V supply. Voltage between P and Q will be



(1) 30 V (2) 60 V

(3) 120 V (4) None of these

50.. 

is the same as:

(1) 2 Ω (2) 8 Ω

(3) 1/2 Ω (4) None of these

END OF THE EXAM