EHF

LEARNING FOR LIFE

EDUHEAL FOUNDATION

CLASS 10

LEVEL–1

Set A1

EHF OLYMPIADS

• 4000 schools • 6 lakh students

• 10 olympiads • Global outreach

NIS

EHF

NATIONAL INTERACTIVE SCIENCE OLYMPIAD

Name : .....

Roll No : .....

Class : .....

School : .....

BSE international finance olympiad (BIFO)

NATIONAL IIT-PMT OLYMPIAD (NIPO)

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.

Level - 2 : School toppers* will be selected for level-2-National level - online computer based interactive test held at exam centres all over India. Besides selection for level-3, winner will get merit certificate, medals, educational CDs, laptop, scholarship and other prizes. There is no level-2 in Art and Cricket.

Level - 3 : Toppers will qualify# for level-3-International level-where you will compete with students globally. Get selected for EHFs International Olympiad training camp. Only Indian organization giving students exposure to global competitions. Represent India & win laurels. Guidance by top scientists. Prizes ranges from cash (millions of $), gadgets, foreign trips, publicity, fame, scholarships, Internships, conference participation and more.

* # See prospectus/website for details

Instructions for the Candidate

1. You are allowed additional 10 minutes to fill the required details in the RESPONSE SHEET (OMR).
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.

WEBSITE : WWW.EDUHEALFOUNDATION.ORG
E-MAIL : INFO@EDUHEALFOUNDATION.ORG

ROUGH WORK

GENERAL IQ

1. The following series of numbers contains one number that does not fit. Find that number.

3, 5, 7, 11, 14, 17

(1) 14 (2) 7
(3) 17 (4) None of these

2. "Pig is to pork" as "Cow is to _____".

(1) Lamb (2) Beef
(3) Stew (4) None of these

3. Observe the pattern: T/3/Q/6/N/9/K/12/H/15/E/18/? What comes next in this pattern?

(1) 21 (2) D
(3) B (4) None of these

4. Estimate the difference. Round each number to the nearest whole number, then subtract.

$$5\frac{16}{17} - 2\frac{13}{18}$$

The difference is approximately

(1) 3 (2) 2
(3) 1 (4) none of these

5. Akash likes 25 but not 24; he likes 400 but not 300; he likes 144 but not 145. Which does he like?

(1) 124 (2) 200
(3) 1600 (4) None of these

6. If you rearrange the letters "LNGEDNA" you have the name of a(n):

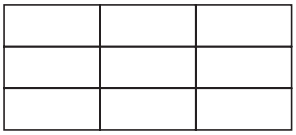
(1) Animal (2) Country
(3) Ocean (4) None of these

7. Find the missing letter in the given pattern:

1, c, 4, f, 7, i, 10, ?

(1) K (2) M
(3) L (4) None of these

8. Number of parallelograms in the given figure is



(1) 15 (2) 18
(3) 21 (4) none of these

9. Select the correct option in place of the question mark.

AOP, CQR, EST, GUV, ?

(1) IYZ (2) HWX
(3) IWX (4) none of these

10. A is B's sister. C is B's mother. D is C's father. E is D's mother. Then, how is A related to D?

(1) Grandfather (2) Grandmother
(3) Granddaughter (4) None of these

GENERAL SCIENCE

11. Arrange the following substances in increasing order of intermolecular force of attraction:

water, sugar, oxygen

(1) Oxygen < Water < Sugar
(2) Oxygen < Sugar < Water
(3) Water < Sugar < Oxygen
(4) None of these

12. The force between particles of matter is called as _____.

(1) cohesive force (2) adhesive force
(3) kinetic energy (4) none of these

13. Which of the following has maximum number of atoms?

(1) 18g of H_2O (2) 18g of O_2
(3) 18g of CH_4 (4) None of these

14. Which of the following represents a correct chemical formula?

(1) CaCl (2) $BiPO_4$
(3) $NaSO_4$ (4) None of these

15. Electronic configuration is arrangement of electrons in

(1) nucleus (2) shells

(3) sub-shells (4) none of these

16. Iodine-123 is used to

(1) diagnose thyroid problem

(2) image the brain

(3) kill cancer cells

(4) none of these

17. Which one of the following cell constituents cannot be seen while observing a human cheek cell?

(1) nucleus (2) cell wall

(3) cytoplasm (4) none of these

18. Animal cell lacking nuclei would also lack in -

(1) Chromosome (2) Ribosome

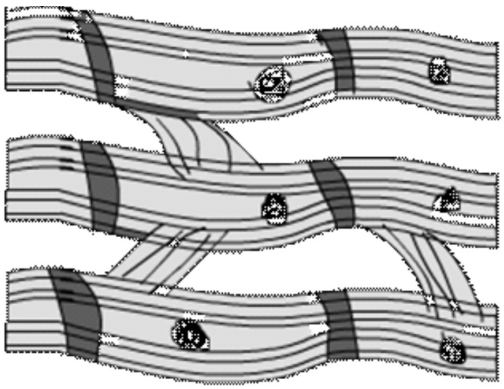
(3) Lysosome (4) None of these

19. Tissue that connects muscle to bone in humans.

(1) Phloem (2) Tendon

(3) Simple Epithelium (4) None of these

20. Which type of muscle fibre is shown in the given figure?



Cardiac Muscle

(1) Cardiac Muscle (2) Striated muscle

(3) Smooth muscle (4) None of these

21. Spiders and scorpions are

(1) insects (2) millipedes

(3) arachnids (4) none of these

22. Name the phylum to which Octopus and Unio belong?

(1) Mollusca (2) Arthropoda

(3) Annelida (4) None of these

23. The initial velocity of a body is u. It is under uniform acceleration a. Its velocity v at any time t is given by

(1) $v = u + at^2$ (2) $v = u + \frac{1}{2}at^2$

(3) $v = u + at$ (4) none of these

24. A particle experiences constant acceleration for 20 seconds after starting from rest. If it travels a distance s_1 in the first 10 seconds and distance s_2 in the next 10 seconds then,

(1) $s_2 = s_1$ (2) $s_2 = 2s_1$

(3) $s_2 = 3s_1$ (4) none of these

25. Rocket works on the principle of conservation of

(1) mass (2) energy

(3) momentum (4) velocity

26. To accelerate a vehicle to $3m/s^2$ what force will be needed if the mass of the vehicle is equal to 100 kg?

(1) 300 N (2) 500 N

(3) 700 N (4) None of these

27. A stone is released from the top of a tower of height 19.6 m. Calculate its final velocity just before touching the ground.

(1) 29.6 m per sec (2) 39.6 m per sec

(3) 19.6 ms^{-1} (4) None of these

28. A big stone and small stone are dropped from the roof of the house at the same time. Which one will reach the ground first?

(1) Big Stone (2) Small stone

(3) Both at the same time (4) None of these

29. An engine works 54,000 J work by exerting a force of 6000 N on it. What is the displacement of the force?

(1) 10 m (2) 8 m

(3) 9 m (4) None of these

30. Work done by the force of gravity on box lying on a roof of a bus moving with a constant velocity on a straight road is

(1) zero

(2) speed of bus x force of gravity

(3) mass of bus *x* force of gravity

(4) none of these

31. Radar is used to determine the velocities and movement of aircrafts.It works on the principle of

(1) dopplers effect (2) gravitational effect

(3) both (1) and (2) (4) none of these

32. Earthquake produces which kind of sound before the main shock wave begins

(1) Ultrasound (2) Infra sound

(3) Audible sound (4) None of these

33. Which disease is transmitted by mosquitoes?

(1) Dengue (2) Brain fever

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

34. Which diseases last for a short time without posing adverse effects on the health?

(1) Acute disease (2) Chronic disease

(3) Non-infectious disease (4) None of these

35. Find out the correct sentence about manure

(i) Manure contains large quantities of organic matter and small quantities of nutrients.

(ii) It increase the water holding capacity of sandy soil.

(iii) It helps in draining out of excess of water from clayey coil.

(iv) Its excessive use pollutes environment because it is made of animal excretory waste.

(1) (i) and (iii) (2) (i) and (ii)

(3) (ii) and (iii) (4) None of these

36. Cattle husbandry is done for the following purposes

(i) Milk production (ii) Agricultural work

(iii) Meat production (iv) Egg production

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

(3) (iii) and (iv) (4) None of these

37. Find out the correct sentence

(1) Enzymes packed in Lysosomes are made through RER (rough endoplasmic reticulum).

(2) Rough endoplasmic reticulum and smooth endoplasmic reticulum produce lipid and protein respectively.

(3) Endoplasmic reticulum is related with the destruction of plasma membrane

(4) None of these

38. Covalent compounds are generally

(1) soluble in water (2) insoluble in water

(3) ionize in water (4) None of these

39. Which power plant works on the basis of gravity of earth?

(1) Geothermal (2) Wind farms

(3) Hydropower (4) None of these

40. The voltmeter is always connected in _____ across the points between which the potential difference is to be measured.

(1) series (2) parallel

(3) either series or parallel (4) none of these

INTERACTIVE SECTION

41. A student identified the various parts of an embryo of a gram seed and listed them as given below:

(i) Testa

(ii) Plumule

(iii) Radicle

(iv) Cotyledon

(v) Tegmen

Out of these the actual parts of the embryo are:

(1) (i), (ii), (iii)

(2) (ii), (iii), (iv)

(3) (iii), (iv), (v)

(4) None of these

42. Three students A, B, and C reported the following set of organs to be homologous. Who is correct?

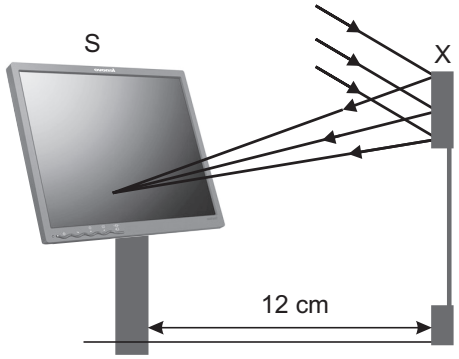
(1) Wings of a bat and a butterfly

(2) Wings of a pigeon and a bat

(3) Forelimbs of cow, a duck and a lizard

(4) None of these

43. Study the following diagram and select the correct statement about the device 'X':



(1) Device 'X' is a concave mirror of focal length 6 cm

(2) Device 'X' is a concave mirror of focal length 8 cm

(3) Device 'X' is a concave mirror of focal length 12 cm

(4) None of these

44. A student puts a drop of acetic acid first on a blue litmus paper and then on a red litmus paper. He would observe that

(1) the red litmus paper turns colourless and there is no change in the blue litmus paper.

(2) the red litmus paper turns blue and the blue litmus paper tuns red.

(3) there is no change in the red litmus paper and the blue litmus paper turns red.

(4) None of these

45. A student has obtained a point image of a distant object using the given convex lens. To find the focal length of the lens he should measure the distance between the

(1) lens and the object only

(2) lens and the screen only

(3) object and the image only

(4) none of these

46. A student obtained on a screen the sharp image of a candle flame placed at the farther end of laboratory table using a concave mirror. For getting better value of focal length of the mirror, the teacher suggested to him to focus the sun. What should the student do?

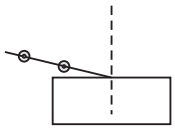
(1) Should move the mirror away from the screen.

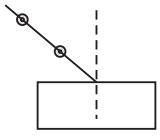
(2) Should move the mirror towards the screen

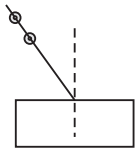
(3) Should move the mirror and screen both towards the sun.

(4) None of these

47. Which of the following is the best experimental set-up out of the three shown for tracing the path of a ray of light passing through a rectangular glass slab?

(1) 

(2) 

(3) 

(4) None of these

48. When a pinch of sodium bicarbonate is added to acetic acid, a gas is evolved which:

(i) has dense white fumes

(ii) extinguishes a burning splinter

(iii) turns lime water milky

(1) (i) and (ii) (2) (ii) and (iii)

(3) (i) and (iii) (4) None of these

49. Four students recorded the following observations while adding soap in distilled water and hand pump water.

(a) Soaps form lather easily in distilled water as well as in hand pump water

(b) Soaps form lather easily in hand pump water.

(c) Soaps form lather easily in distilled water.

(d) Soaps don't form lather in distilled water

(1) (a) (2) (b)

(3) (c) (4) None of these

50. A student traces the path of a ray of light through a rectangular glass slab for the different values of angle of incidence. He observes all possible precautions at each step of the experiment. At the end of the experiment, on analysing the measurements, which of the following conclusions is he likely to draw?

(1) $\angle i = \angle e < \angle r$ (2) $\angle i < \angle e < \angle r$

(3) $\angle i = \angle e > \angle r$ (4) none of these

END OF THE EXAM