



EHF

LEARNING FOR LIFE

EDUHEAL FOUNDATION

CLASS 11

LEVEL - 1

Set A1

EHF OLYMPIADS

- 4000 schools • 6 lakh students
- 10 olympiads • Global outreach



EHF

NATIONAL BIOTECHNOLOGY OLYMPIAD

Name :

Roll No :

Class :

School :



art and cricket clinic contest

NATIONAL BIOTECHNOLOGY OLYMPIAD



NATIONAL MATHS OLYMPIAD



NATIONAL SCIENCE OLYMPIAD



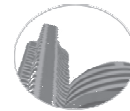
INTERNATIONAL CYBER OLYMPIAD



INTERNATIONAL ENGLISH OLYMPIAD



INTERNATIONAL GENERAL KNOWLEDGE OLYMPIAD



BSE INVESTORS' PROTECTION FUND

BSE international finance olympiad (BIFO)



NATIONAL IIT-PMT OLYMPIAD (NIPO)

Level - 1 : All Level-1 successful* participants will get certificate, aptitude 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 EHF's 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 KNOWLEDGE

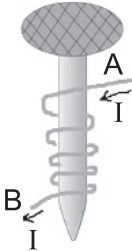
- One carbon credit is equivalent to
 - 10 kg of CO₂
 - 100 kg of CO₂
 - 1000 kg of CO₂
 - None of these
- Minamata disease is caused due to
 - Arsenic poisoning
 - Lead poisoning
 - Mercury poisoning
 - None of these
- To which family of mammals does the Prairie Dog belong?
 - Rat
 - Squirrel
 - Dog
 - None of these
- Which is the largest of all deer species found in the Indian subcontinent?



 - Swamp Deer
 - Sambar
 - Chital
 - None of these
- The wild ass and rhinoceros are both ____ toed hoofed mammals.
 - Odd
 - Even
 - Both (1) and (2)
 - None of these
- Which is the gestation period of a rhinoceros?
 - 9 months
 - 16 months
 - 6 months
 - None of these
- Which is the only mammal with keratin scales?
 - Mongoose
 - Snake
 - Pangolin
 - None of these
- Casuarina is a
 - hydrophyte
 - mesophyte
 - xerophyte
 - none of these
- Which is the smallest gland in human body?
 - Liver
 - Thyroid
 - Pituitary
 - None of these
- The type of fruit obtained from a multicarpillary apocarpous gynoecium is
 - multiple
 - composite
 - aggregate
 - none of these

SECTION B: PHYSICS AND CHEMISTRY

- Ohm's law is not applicable to
 - DC circuits
 - small resistors
 - semi-conductors
 - none of these
- A current flows from the wire wound around an iron nail as shown in the figure below. Where is the North Pole and South Pole?



 - A = South Pole, B = North Pole
 - A = North Pole, B = South Pole
 - Both (1) and (2)
 - None of these
- Who was the first person to obtain the spectrum of sunlight?
 - Albert Einstein
 - Isaac Newton
 - Galileo
 - None of these
- The type of glass used in making lenses and prisms is
 - pyrex glass
 - jena glass
 - flint glass
 - none of these
- Zinc reacts with an acid as well as with a base to liberate hydrogen. On the basis of this what should be the nature of the zinc metal?
 - Basic
 - Acidic
 - Amphoteric
 - None of these

16. The self linkage property (catenation) is maximum in
 (1) carbon (2) silicon
 (3) sulphur (4) none of these
17. Which is the by-product formed in the saponification reaction?
 (1) Glucose (2) Glycerol
 (3) Both (1) and (2) (4) None of these
18. In Mendeleev's Periodic Table, gaps were left for the elements to be discovered later. Which of the following elements found a place in the periodic table later?
 (1) Germanium (2) Chlorine
 (3) Oxygen (4) None of these
19. A laser signal is beamed towards a distant planet from the Earth and its reflection is received after seven minutes. If the distance between the planet and the Earth is 6.3×10^{10} m, calculate the velocity of the signal.
 (1) 5×10^{11} m/s
 (2) 3×10^8 m/s
 (3) 7×10^{10} m/s
 (4) None of these
20. Which of the following terms are unitless?
 (i) Molality (ii) Molarity
 (iii) Mole Fraction (iv) Mass Percent
 (1) (i) and (ii) (2) (ii) and (iii)
 (3) (iii) and (iv) (4) None of these

SECTION C: BIOLOGY

21. In the given food chain, suppose the amount of energy at fourth trophic level is 5 kJ, what will be the energy available at the producer level?
 Grass → Grasshopper → Frog → Snake → Hawk
 (1) 50 kJ (2) 500 kJ
 (3) 5000 kJ (4) None of these
22. Which of the following is a prime health risks associated with greater UV radiation through the atmosphere due to depletion of stratospheric ozone?
 (1) Increased liver cancer
 (2) Neurological disorder
 (3) Increased skin cancer
 (4) None of these
23. Which of these initiates the heart beat?
 (1) SA Node (2) AV Node
 (3) Bundle of His (4) None of these
24. What is the main excretory product in lizards?
 (1) Ammonia
 (2) Urea
 (3) Uric acid
 (4) None of these
25. Acetylcholine _____.
 (1) increases the speed of conduction of impulses
 (2) decreases the speed of conduction of impulses
 (3) quickens the effect of growth hormones
 (4) none of these
26. Which two organs are connected by pons with the help of transverse band of nerves?
 (1) Nerves of brain and spinal cord
 (2) Both the cerebral hemispheres
 (3) Cerebellum and central nervous system
 (4) None of these
27. Which of the following is not an artificial method of vegetative propagation?
 (1) Cutting (2) Layering
 (3) Budding (4) None of these
28. The hormone secreted by the pituitary to start the ovulation process is _____.
 (1) FSH
 (2) Luteinizing hormone
 (3) Oestrogen
 (4) None of these

29. Which type of variation is inherited?
- (1) Somatic Variation
 - (2) Germinal Variation
 - (3) Both Somatic and Germinal
 - (4) None of these
30. Mendel observed 7 pairs of contrasting characters in *Pisum sativum*. One of the following is not a part of that. Find out.
- (1) Yellow and green seed colour
 - (2) Terminal and axial flower
 - (3) Smooth and rough stem
 - (4) None of these
31. Which of the following is not a homologous organ?
- (1) Human arm
 - (2) Birds wing
 - (3) Whale's flipper
 - (4) None of these
32. Who provided experimental evidence to support theory of origin of life from inanimate matter?
- (1) Stanley L. Miller
 - (2) Charles Darwin
 - (3) Mendel
 - (4) None of these
33. Which of the following rock types would most likely be the best oil reservoir?
- (1) Granite
 - (2) Shale
 - (3) Sandstone
 - (4) None of these
34. The world has the least amount of which of the following fuel types?
- (1) Oil
 - (2) Coal
 - (3) Uranium
 - (4) None of these
35. Most of the sources of energy we use represent stored solar energy. Which of the following is not ultimately derived from the Sun's energy?
- (1) Geothermal energy
 - (2) Wind energy
 - (3) Nuclear energy
 - (4) None of these
36. Ocean thermal energy is due to
- (1) energy stored by waves in the ocean
 - (2) temperature difference at different levels in the ocean
 - (3) pressure difference at different levels in the ocean
 - (4) none of these
37. Helping cells of the brain-
- (1) Axons
 - (2) Dendrites
 - (3) Glia
 - (4) None of these
38. Coal is formed from dead remains of
- (1) mammals
 - (2) plants
 - (3) sea organisms
 - (4) none of these
39. In five kingdom system, the main basis of classification is
- (1) structure of cell wall
 - (2) nutrition
 - (3) structure of nucleus
 - (4) none of these
40. The wheat belongs to the Genus
- (1) *Musca domestica*
 - (2) *Mangifera*
 - (3) *Triticum*
 - (4) None of these

SECTION C: MATHEMATICS

21. If the HCF of 65 and 117 is expressible in the form $65m - 117$, then the value of m is

- (1) 1 (2) 4
(3) 2 (4) None of these

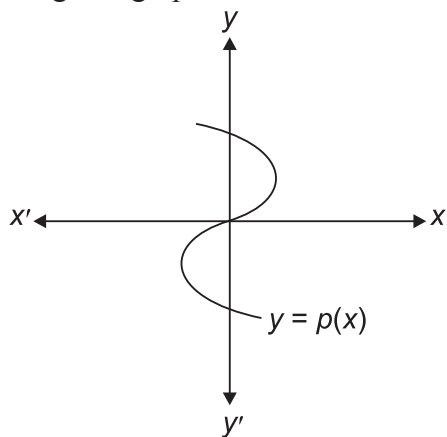
22. A line is tangent to a circle with radius 5 cm. Distance between the centre of circle and the line m is

- (1) 3 cm (2) 4 cm
(3) 5 cm (4) None of these

23. A quadrilateral ABCD is drawn to circumscribe a circle. If $AB = 12$ cm, $BC = 15$ cm and $CD = 14$ cm, then AD is equal to

- (1) 11 cm (2) 12 cm
(3) 14 cm (4) None of these

24. The number of zeroes for the polynomial $y = p(x)$ from the given graph is



- (1) 3 (2) 2
(3) 1 (4) None of these

25. Represent the following situation in the form of quadratic equation: Rohan's mother is 26 years older than him. The product of their ages (in years) 3 years from now will be 360.

- (1) $t^2 + 32t - 273 = 0$ (2) $t^2 + 52t + 373 = 0$
(3) $t^2 + 42t - 273 = 0$ (4) None of these

26. Find the value of k for which the system of equations have infinitely many solutions:

$$x - ky = 2, 3x + 6y = -5$$

- (1) -3 (2) -4

- (3) -2 (4) None of these

27. Dinesh is walking along the line joining (1, 4) and (0, 6). Naresh is walking along the line joining (3, 4) and (1, 0). Find the point where both of them cross each other.

- (1) (3, 3) (2) (4, 4)
(3) (2, 2) (4) None of these

28. A man receives ₹ 60 for the first week and ₹ 3 more each week than the preceding week. How much does he earn by the 20th week?

- (1) ₹ 1,760 (2) ₹ 1,770
(3) ₹ 1,780 (4) None of these

29. Which term of the A.P. 24, 21, 18, is the first negative term?

- (1) 9th (2) 10th
(3) 12th (4) None of these

30. If the circumference of a circle is increased by 50%, then its area will be increased by

- (1) 75% (2) 150%
(3) 125% (4) None of these

31. The height of a cone is 30 cm. A small cone is cut off at the top by a plane parallel to its base. If its volume be $\frac{1}{27}$ of the volume of the given cone, at what height above the base is the section made.

- (1) 30 cm (2) 20 cm
(3) 10 cm (4) None of these

32. Which correlation represents the strongest relationship?

- (1) +0.98 (2) -0.02
(3) -0.73 (4) None of these

33. Find the mode from the following distributions:

Marks	10	12	15	20	25	35	45	50	60
No. of Students	4	6	10	14	20	19	10	6	3

- (1) 20 (2) 35
(3) 25 (4) None of these

34. An integer is chosen at random from the number ranging from 1 to 50. The probability that the integer chosen is a multiple of 2 or 3 or 10 is

- (1) $\frac{3}{10}$ (2) $\frac{7}{10}$
 (3) $\frac{18}{25}$ (4) None of these

35. If FRIEND is coded as HUMJTK, how can CANDLE be written in that code?

- (1) DEQJQM (2) DCQHJK
 (3) EDRIRL (4) None of these

36. In a group of 52 persons, 16 drink tea but not coffee and 33 drink tea and coffee both.

- (1) 19 (2) 17
 (3) 18 (4) None of these

37. Find the polar representation of $(i - \sqrt{3})$.

- (1) $2 \sin\left(\frac{6\pi}{7}\right) + i \cos\left(\frac{6\pi}{7}\right)$
 (2) $2 \cos\frac{11\pi}{9} + i \sin\left(\frac{11\pi}{9}\right)$

(3) $2 \cos\frac{5\pi}{6} + i \sin\left(\frac{5\pi}{6}\right)$

(4) None of these

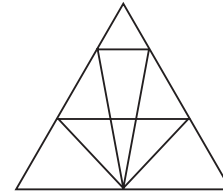
38. The ratio of the length of a rod and its shadow is $1 : \sqrt{3}$. The altitude of the sun is

- (1) 30° (2) 45°
 (3) 60° (4) None of these

39. A triangle with vertices $(4, 0)$, $(-1, -1)$ and $(3, 5)$ is

- (1) right angled triangle
 (2) isosceles right angled triangle
 (3) equilateral triangle
 (4) none of these

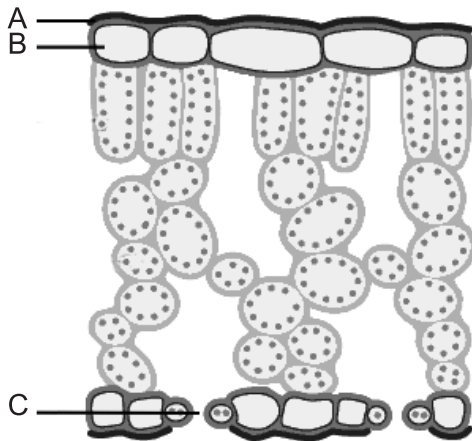
40. Find the number of triangles in the given figure:



- (1) 26 (2) 22
 (3) 18 (4) None of these

INTERACTIVE SECTION

41. The diagram shows a cross-section of a leaf. Which label shows the waxy layer?



- (1) A
 (2) B
 (3) C
 (4) None of these

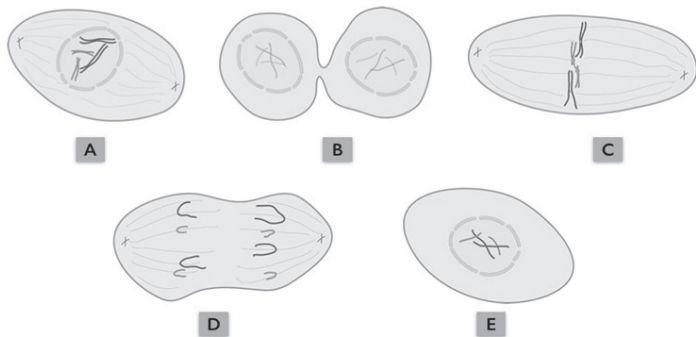
42. What is normal breathing rate in an adult man at rest?

- (1) 15-18 times per minute
 (2) 10-15 times per minute
 (3) 20-25 times per minute
 (4) None of these

43. What does the epithelial tissue in the stomach do?

- (1) Covers the inner and outer surfaces of the stomach.
 (2) Produces digestive juices.
 (3) Churns the food.
 (4) None of these

44. Which of the phases in the diagram corresponds to metaphase?



- (1) D
- (2) A
- (3) C
- (4) None of these

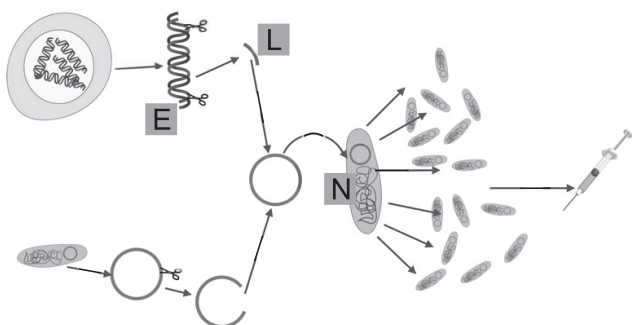
45. When Mendel crossed pure-breeding purple and white flowered pea plants, the dominant to recessive ratio in the F_1 generation was

- (1) 3 : 1
- (2) 4 : 0
- (3) 4 : 1
- (4) None of these

46. Ayush's blood group is 'A'. Ishoo's blood group is 'O' and Riya's blood group is 'AB'. Riya can receive blood from whom?

- (1) Both Ayush and Ishoo
- (2) Ayush
- (3) Neither Ayush nor Ishoo
- (4) None of these

47. The diagram below shows the process of producing genetically engineered bacteria that can produce the hormone insulin in large amounts. Which label best corresponds to a purified DNA fragment carrying the gene for insulin?



- (1) L
- (2) E
- (3) N
- (4) None of these

48. A student observed that the colour of pH paper changed to green when she dipped it in water. She added a few drops of concentrated hydrochloric acid to the water. The colour of pH would turn to

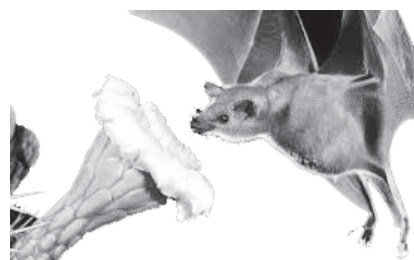
- (1) light red
- (2) apple green
- (3) dark blue
- (4) none of these

49. Match the following with correct response:

- | | |
|-----------------|------------------------|
| I. Flatworms | (A) Nephridia |
| II. Arthropods | (B) Flame cells |
| III. Earthworms | (C) Kidney |
| IV. Mammals | (D) Malpighian tubules |

- (1) I-A, II-C, III-B, IV-D
- (2) I-B, II-D, III-A, IV-C
- (3) I-D, II-A, III-C, IV-B
- (4) None of these

50. Pollination by bats is called _____



- (1) Ornithophily
- (2) Entomophily
- (3) Chiropterophily
- (4) None of these



END OF THE EXAM