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ICO INTERNATIONAL CYBER OLYMPIAD	NISO NATIONAL INTERACTIVE SCIENCE OLYMPIAD	NIMO NATIONAL INTERACTIVE MATHS OLYMPIAD	NBTO NATIONAL BIOTECHNOLOGY OLYMPIAD	IEO INTERNATIONAL ENGLISH OLYMPIAD	IGO INTERNATIONAL G.K. OLYMPIAD	BIFO BSE INTERNATIONAL FINANCE OLYMPIAD	NIPO NATIONAL IIT-PMT OLYMPIAD
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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, G.K. and Biotech.

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. Level 3 is in Maths, Science & Cyber only.

*# See prospectus/website for details

- 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.
- 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.
- 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.**

EHF
NATIONAL
BIOTECHNOLOGY
OLYMPIAD

N B T O

10
Class

A1
Paper
Code

L E V E L - 1



GENERAL KNOWLEDGE

- Epiphytic orchid roots are a form of:
 - Aerial roots
 - Adventitious roots
 - Parasitic roots
 - None of these
- Lutein and Zea-xanthin which act as antioxidants are present in large quantities in:
 - Apple
 - Avocado
 - Pear
 - None of these
- The flowers of which plant produces coumarin, a natural mosquito repellent?
 - Ageratum
 - Crabapple
 - Pacific madrone
 - None of these
- A plant which is effective in removing harmful toxins from the air:
 - Spider plant
 - Golden pothos
 - Both (1) and (2)
 - None of these
- Who is known as the father of 'green revolution' in India?
 - M.S Swaminathan
 - Baldev Singh Dhillon
 - Dr. Joginder Singh
 - None of these
- Study of ecology and climate of the past as revealed by fossils and other methods which comes under:
 - Taphonomy
 - Paleoecology
 - Palynology
 - None of these
- Archaeopteryx fossils has been found in fine-grass Jurassic limestone in:
 - France
 - Brazil
 - Germany
 - None of these
- A mild stimulant found in chocolate:
 - Theobromine
 - Nicotine
 - Ginseng
 - None of these

9. Eating a banana makes you relaxed and improves your mood due to the conversion of tryptophan to:
 (1) Oxytocin (2) Serotonin
 (3) Insulin (4) None of these
10. To reduce swelling and irritation caused by mosquito bites, rub the affected area with the skin of which fruit?
 (1) Apple (2) Papaya
 (3) Banana (4) None of these

LIFE SCIENCE

11. The forelimbs of a human, a bird and a horse are:
 (1) Analogous organs (2) Homologous organs
 (3) Vestigial organs (4) None of these
12. Chromosomes are distinctly visible during which phase of mitosis?
 (1) Prophase (2) Anaphase
 (3) Metaphase (4) None of these
13. Leaves of a healthy potted plant was coated with vaseline to block the stomata. Will this plant remain healthy for a long time?
 (1) Applying vaseline prevents transpiration and retain the moisture of the leaf for sometime keeping the plant healthy
 (2) Applying vaseline prevents respiration, transpiration and photosynthesis resulting in the wilting of the plant
 (3) Both (1) and (2)
 (4) None of these
14. The part of a flower which grows into fruit:
 (1) Stamen (2) Carpel
 (3) Sepal (4) None of these
15. The ventricles of CNS are filled with which fluid?
 (1) Pericardial fluid
 (2) Spinal fluid
 (3) Cerebrospinal fluid
 (4) None of these
16. Growth of pollen tube towards ovule is called:
 (1) Geotropism (2) Hydrotropism
 (3) Chemotropism (4) None of these
17. The increase in concentration of a chemical per unit weight of the organisms with successive rise in trophic level:
 (1) Biomagnification (2) Biodegradation
 (3) Decomposition (4) None of these

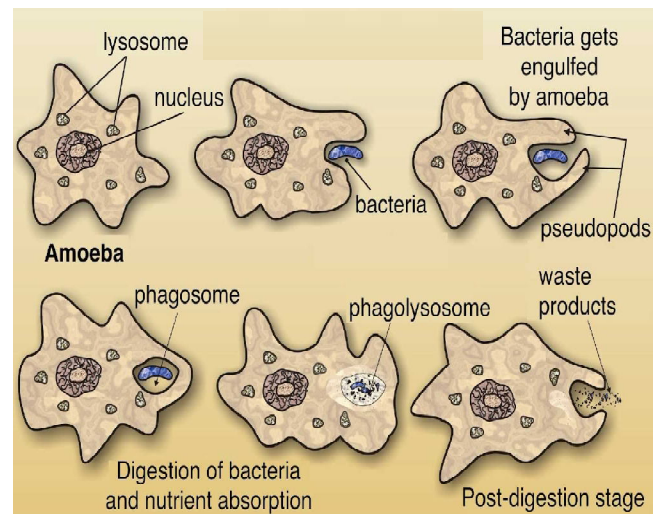
18. Which of the following is uricotelic?
 (1) Mammals (2) Reptiles
 (3) Adult amphibians (4) None of these
19. Condition in which kidneys excrete more hydrogen ions and retain more bicarbonate:
 (1) Acidosis (2) Alkalosis
 (3) Necrosis (4) None of these
20. Nuclear region without the nuclear membrane is called:
 (1) Nucleus
 (2) Nucleoid
 (3) Endoplasmic reticulum
 (4) None of these
21. Which tissue conducts organic substances in plants?
 (1) Xylem (2) Phloem
 (3) Sieve tube (4) None of these
22. The red pigment found in RBC which carries oxygen:
 (1) Haemoglobin (2) Myoglobin
 (3) Plasma (4) None of these
23. A collection of clones having recombinant DNA is called:
 (1) Gene library (2) Gene pool
 (3) Gene bank (4) None of these
24. Multiple fission occurs in:
 (1) Yeast (2) Hydra
 (3) Plasmodium (4) None of these
25. Implantation of embryo takes place in:
 (1) Fallopian tube (2) Ovary
 (3) Uterus (4) None of these
26. Iodine is essential for the synthesis of:
 (1) Thyroxine (2) Melatonin
 (3) Progesterone (4) None of these
27. Which of the following correctly explains how a favourable genetic trait can increase in frequency in a population?
 (1) Genetic recombination
 (2) Natural selection
 (3) Lamarck's Principle
 (4) None of these
28. How many oxygen atoms are there in one ozone molecule?
 (1) 3 (2) 1
 (3) 2 (4) None of these

29. Which chemical is used as refrigerants and in fire extinguishers?
 (1) Helium (2) Neon
 (3) Chlorofluorocarbons (4) None of these
30. Which is the dihybrid ratio according to Mendel's second law of inheritance in seeds?
 (1) 1 : 9 : 3 : 3 (2) 9 : 3 : 1 : 3
 (3) 9 : 3 : 3 : 1 (4) None of these
31. Which are the components of a nucleotide?
 (1) A nitrogen containing base, pentose sugar and a phosphate group
 (2) A phosphorous containing base, hexose sugar and a sulphur group
 (3) A sulphur containing base, mono sugar and a phosphate group
 (4) None of these
32. Which of the following acts as an insulator around the axon?
 (1) Adipose tissue (2) Myelin sheath
 (3) Dendron (4) None of these
33. How many pairs of cranial nerves are present in human beings?
 (1) 31 (2) 10
 (3) 12 (4) None of these
34. A plant growth hormone that is responsible for elongation in phototropism and gravitropism?
 (1) Gibberellins (2) Cytokinin
 (3) Auxin (4) None of these
35. In grapes application of which plant hormone increases the size of the fruit and loosens clustering?
 (1) Gibberellins (2) Cytokinin
 (3) Auxin (4) None of these
36. Gas exchange between the air and lungs takes place in the
 (1) Bronchi (2) Alveoli
 (3) Trachea (4) None of these
37. The bile produced by the liver is stored in:
 (1) Pancreas (2) Gall bladder
 (3) Jejunum (4) None of these
38. Which of the following carries deoxygenated blood from the heart to the lungs?
 (1) Pulmonary artery (2) Pulmonary vein
 (3) Capillaries (4) None of these

39. Evolution of new species because of geographical segregation is called:
 (1) Survival of the fittest
 (2) Natural selection
 (3) Genetic drift
 (4) None of these
40. Life sensitive spots first appeared in:
 (1) Monera (2) Planaria
 (3) Jellyfish (4) None of these

INTERACTIVE SECTION

41. Which compound is formed after glycolysis?
 (1) Glycogen (2) Pyruvic acid
 (3) Lactic acid (4) None of these
42. The given diagram depicts which process in amoeba?



- (1) Phagocytosis (2) Reproduction
 (3) Excretion (4) None of these
43. Which is the correct sequence for the circulation of blood through the heart ?
 (1) Systemic vein → Right auricle → Right ventricle → Sinus venosus
 Pulmonary artery → Lungs → Pulmonary vein → Left auricle → Left ventricle → Systemic circulation → Trunchus arteriosus
 (2) Systemic vein → Sinus venosus → Right auricle → Right ventricle
 Pulmonary artery → Lungs → Pulmonary vein → Left auricle → Left ventricle → Trunchus arteriosus → systemic circulation

(3) Systemic vein → Right ventricle → Sinus venosus → Right auricle
Pulmonary artery → Lungs → Pulmonary vein → Left ventricle → Left auricle → Truncus arteriosus → Systemic circulation

(4) None of these

44. Name a fungus which reproduces by spore formation:

- (1) Rhizopus
- (2) Lobster mushrooms
- (3) Asterophora
- (4) None of these

45. The number of chromosomes in parents and offsprings of a particular species remain constant due to:

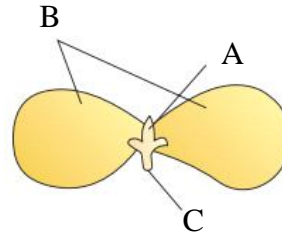
- (1) Doubling of chromosomes after zygote formation
- (2) Halving of chromosomes during gamete formation
- (3) Doubling of chromosomes after gamete formation
- (4) None of these

46. Factors responsible for the rapid spread of bread mould on slices of bread are:

- (i) Large number of spores
- (ii) Availability of moisture
- (iii) Presence of tubular branched hyphae
- (iv) Formation of round shaped sporangia

- (1) (i) and (iii)
- (2) (i) and (ii)
- (3) (iii) and (iv)
- (4) None of these

47. In the given germinating seedling, the parts A, B and C marked sequentially are:



- (1) Cotyledon, plumule and radicle
- (2) Plumule, radicle and cotyledon
- (3) Radicle, cotyledon and plumule
- (4) None of these

48. Length of the pollen tube depends on the distance between:

- (1) Pollen grain in the anther and upper surface of the stigma
- (2) Pollen grain on the upper surface of the stigma and ovule
- (3) Upper surface of the stigma and lower part of style
- (4) None of these

49. Gregor Mendel observed 7 pairs of contrasting characters in *pisum sativum*. One of the following is not a part of that contrasting character:

- (1) Yellow and green seed colour
- (2) Terminal and axial flower
- (3) Smooth and rough stem
- (4) None of these

50. While digging, fossils are found at deeper layers of the earth. From this we can conclude that:

- (1) Fossil is very old may be more than thousand years.
- (2) Fossil may be recent or old, its position is irrelevant
- (3) Fossil age cannot be computed
- (4) None of these



END OF THE EXAM