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<b>ICO</b> INTERNATIONAL CYBER OLYMPIAD	<b>NISO</b> NATIONAL INTERACTIVE SCIENCE OLYMPIAD	<b>NIMO</b> NATIONAL INTERACTIVE MATHS OLYMPIAD	<b>NBTO</b> NATIONAL BIOTECHNOLOGY OLYMPIAD	<b>IEO</b> INTERNATIONAL ENGLISH OLYMPIAD	<b>IGO</b> INTERNATIONAL G.K. OLYMPIAD	<b>BIFO</b> BSE INTERNATIONAL FINANCE 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 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

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.

## NATIONAL BIOTECHNOLOGY OLYMPIAD

### N B T O

**9**  
Class

**A1**  
Paper Code

### LEVEL - 1



### GENERAL KNOWLEDGE

1. The pesticide that has been banned in the states of Kerala and Karnataka after reports of its role of congenital malformations.
  - (1) DDT
  - (2) Endrin
  - (3) Endosulfan
  - (4) None of these
2. Which of the following are commonly produced in animal cell cultures?
  - (1) Interferon
  - (2) Mab
  - (3) Vaccines
  - (4) All of these
3. What was the theme for the year 2011 International Earth Day celebrations?
  - (1) Forests for our future
  - (2) Faces of climate change
  - (3) Asbestos
  - (4) None of these
4. Poisoning by which element present in fish living in polluted waters, can cause brain damage in people who consume these fish?
  - (1) Zinc
  - (2) Mercury
  - (3) Asbestos
  - (4) None of these
5. The National Biodiversity Authority (NBA) was established in which year to implement India's Biological Diversity Act?
  - (1) 2003
  - (2) 2002
  - (3) 2001
  - (4) None of these
6. Which biotechnology has been employed to design organism to grow under specific environmental conditions or in the presence of certain agricultural chemicals?
  - (1) Blue Biotechnology
  - (2) White Biotechnology
  - (3) Green Biotechnology
  - (4) None of these

7. In which country is the world's largest tidal power plant located?  
 (1) India (2) France  
 (3) USA (4) None of these
8. Which of the following can deplete the atmospheric Ozone layer and allow harmful ultraviolet rays to penetrate and reach the earth?  
 (1) Chlorofluorocarbons (2) Carbon dioxide  
 (3) DDT (4) None of these
9. Blue revolution is concerned with  
 (1) Poultry farming (2) Fish farming  
 (3) Cattle farming (4) None of these
10. Eutrophication or excessive growth of plants in water bodies, choking off the oxygen supply of fishes and other water creatures is caused by which pollutant?  
 (1) Asbestos (2) Plastic  
 (3) Chemical fertilizers (4) None of these

### LIFE SCIENCE

11. Most synthetic fibres have  
 (1) Low Elasticity (2) High Elasticity  
 (3) Medium Elasticity (4) None of these
12. The Algae used for the manufacture of Iodine is  
 (1) Chlorella (2) Carotenoids  
 (3) Laminaria (4) None of these.
13. Which of the following crops enrich the soil with nitrogen?  
 (1) Pea (2) Potato  
 (3) Apple (4) None of these
14. Which part of cell serves to process, package and export proteins?  
 (1) Nucleus (2) Golgi apparatus  
 (3) Mitochondria (4) None of these.
15. Fertilization takes place in which part of the female reproductive system?  
 (1) Fallopian tube (2) Ovaries  
 (3) Uterus (4) None of these
16. A device used in vehicles to convert harmful carbon monoxide and nitrogen oxide to harmless carbon

- dioxide and water.  
 (1) Dynamo (2) Catalytic converter  
 (3) Aerosol Cans (4) None of these
17. Which nutrient helps a hibernating animal to derive energy during hibernation?  
 (1) Carbohydrates (2) Fats  
 (3) Proteins (4) None of these
18. The major building blocks of cell membrane  
 (1) Gelatin (2) Phospholipid  
 (3) Amino acid (4) None of these
19. Concentration of Nitrates in water leads to  
 (1) Kwashiorkor  
 (2) Marasmus  
 (3) Blue Baby Syndrome  
 (4) None of these
20. Which pollutant is emitted during volcanic eruption?  
 (1) Methane and Ethane  
 (2) Hydrocarbon  
 (3) SO<sub>2</sub>, CO and CO<sub>2</sub>  
 (4) None of these
21. Which one of the following is required in order for seeds to germinate?  
 (1) Light (2) Water  
 (3) Oxygen (4) All of these
22. Widest part of the alimentary canal is  
 (1) Small intestine (2) Rectum  
 (3) Stomach (4) None of these.
23. Cells were first observed by which scientist?  
 (1) Robert Hooke (2) Carolus Linnaeus  
 (3) Robert Swan (4) None of these
24. Which of the following is an example of rod shaped bacteria?  
 (1) Streptococcus (2) Lactobacillus  
 (3) Spirillum (4) None of these
25. Weeds can be controlled by the use of chemicals called  
 (1) Pesticides (2) Insecticides  
 (3) Weedicides (4) None of these

26. Gene therapy includes
- (1) Treating genes to get more desirable products.
  - (2) Introducing genes as a treatment to any disease.
  - (3) Treatment of genetic disorders by using genetic engineering.
  - (4) None of these
27. You are presented with cells from various parts of a patient and you notice that most of the patient's cell seem to have large amount of fats and carbohydrates contained within the cytoplasm, you conclude that this patient has dysfunctional
- (1) Lysosome
  - (2) Golgi apparatus
  - (3) Mitochondria
  - (4) None of these
28. Pancreatic juice acts upon
- (1) Carbohydrates and fats
  - (2) Carbohydrates and proteins
  - (3) Proteins and fats
  - (4) All of these
29. Which of the following farming practices helps to prevent the erosion of top soil?
- (1) Ploughing a field perpendicular to the contour
  - (2) Ploughing a field in the direction that the water drains
  - (3) Ploughing a field parallel to the contour lines
  - (4) None of these
30. The process in which the parent, splits or divides to form two new organism is called
- (1) Regeneration
  - (2) Vegetative reproduction
  - (3) Binary fission
  - (4) None of these
31. The first stage of photosynthesis in a chloroplast is
- (1) Light-dependent
  - (2) Temperature-dependent
  - (3) Glucose-driven
  - (4) ATP-driven
32. Which is the first wholly synthetic fibre?
- (1) Rayon
  - (2) Nylon
  - (3) Wool
  - (4) None of these
33. Which one of the following is a 'man made' cereal not found in nature?
- (1) Triticale
  - (2) Hybrid maize
  - (3) Dwarf wheat
  - (4) None of these
34. Polythene, a tough wax-like polymer is used in the manufacture of the following substances except
- (1) Plastic pipes
  - (2) Bread-wrappers
  - (3) Candles
  - (4) None of these
35. Potash which is used as a fertilizer is also known as
- (1) Glauber's salt
  - (2) Pearl ash
  - (3) Oil of vitriol
  - (4) None of these.
36. Where is the hereditary material located in the cell?
- (1) The vacuole
  - (2) The cell membrane
  - (3) The nucleus
  - (4) None of these
37. In molecular biology we study
- (1) DNA technology & genetic engineering
  - (2) Cell culture
  - (3) Phylum
  - (4) None of these
38. Human heart has how many valves
- (1) One
  - (2) Six
  - (3) Three
  - (4) None of these
39. Why do we get cramps in the legs during heavy exercise?
- (1) Due to the accumulation of Lactic Acid
  - (2) Due to the accumulation of Carbon dioxide
  - (3) both (1) and (2)
  - (4) None of these
40. DOTS is associated with
- (1) Typhoid
  - (2) AIDS
  - (3) Tuberculosis
  - (4) None of these

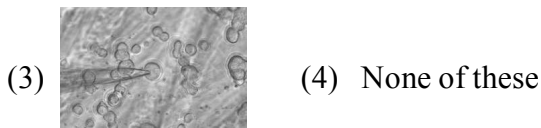
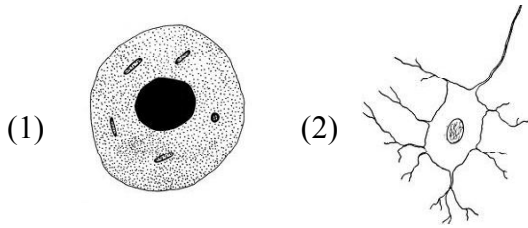
### **ETG INTERACTIVE SECTION**

41. Cockroach could live a long time perhaps a month without its head.  
Which of the following statements support this?
- I The cockroach does not have blood pressure the way a mammal does and so cutting off the head does not lead to uncontrolled bleeding.
- II Cockroaches breathe through spiracles which are in each body segment and the blood does not carry oxygen to the tissue. The spiracles deliver air to each cell of the body through a set of tubes called trachea.

- III The cockroach is a poikilotherm or cold blooded animal.
- IV Respiration in cockroach is controlled by medulla oblongata.

- (1) Only I (2) Both I and IV  
 (3) Only I, II and III (4) Only IV

42. Which of the following is the largest cell in human body?



43. Ramapithecus and Cro-Magnon man are considered

- (1) Ancestors of modern man  
 (2) Ancestors of monkey  
 (3) Ancestors of lion  
 (4) None of these

44. Environmental biotechnology involves:

- (1) The use of microbes to clean up the environment  
 (2) Bioremediation  
 (3) The study of benefits and hazards associated with GMMs  
 (4) All of these

45. Who is the father of tissue culture?

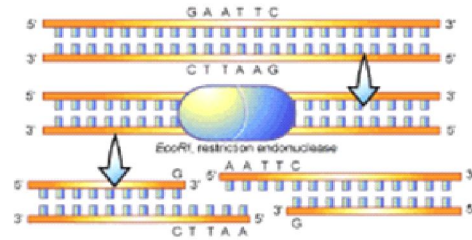
- (1) Bonner (2) Haberlandt  
 (3) Laibach (4) Gautheret



46. Artificial seeds are:

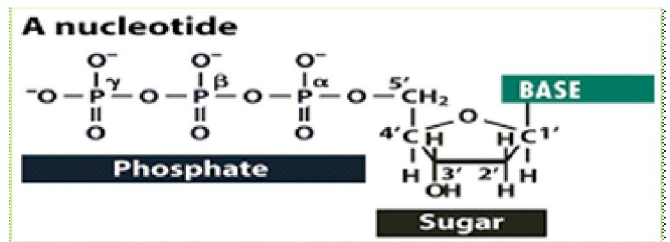
- (1) Seeds produced in laboratory condition  
 (2) Seeds encapsulated in a gel  
 (3) Somatic embryos encapsulated in a gel  
 (4) Zygotic embryos encapsulated in a gel

47. Which of the following is the most important discovery that leads to the development of rDNA (recombination DNA) technology



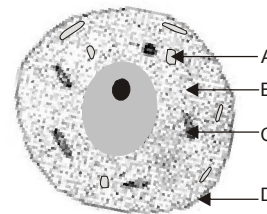
- (1) Discovery of double helix model by Watson  
 (2) Discovery of DNA as genetic material  
 (3) Discovery of restriction enzymes  
 (4) All of these

48. The type of sugar in DNA are



- (1) Triose (2) Tetrose  
 (3) Pentose (4) Hexose

49. Which organelle in the diagram below represents an exception to the cell theory because it contains genetic material and can reproduce within the cell?



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

50. The virus commonly used to infect cell structure for the production of interferon is:

- (1) Corona Virus  
 (2) Sendai Virus  
 (3) Polio Virus  
 (4) Small pox Virus



**END OF THE EXAM**