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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.**

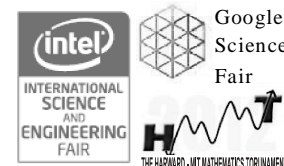
EHF
NATIONAL
BIOTECHNOLOGY
OLYMPIAD

N B T O

7
Class

A1
Paper
Code

L E V E L - 1



GENERAL KNOWLEDGE

- The transgenic plant *flavr savr* tomato carries an artificial gene for:
 - Delaying ripening process
 - Longer shelf life
 - Both (1) & (2)
 - None of these
- Transgenic animals are those which have:
 - Foreign RNA in all of its cells
 - Foreign DNA in all of its cells
 - Foreign DNA in some of its cells
 - None of these
- The bacteria generally used for genetic engineering:
 - Bacillus
 - Pseudomonas
 - Agrobacterium
 - None of these
- The first transgenic plant was:
 - Pea
 - Tobacco
 - Cotton
 - None of these
- Monuments, buildings and statues are damaged due to the corrosion caused by:
 - Acid rain
 - Ozone depletion
 - Radioactivity
 - None of these
- The production of complete animals from somatic cells of an animal is called:
 - Gene cloning
 - Animal cloning
 - Cell cloning
 - None of these
- Animal biotechnology involves:
 - Production of valuable products from animals using rDNA technology
 - Rapid multiplication of animals of desired genotypes
 - Both (1) and (2)
 - None of these

8. Which green house gas speeds up the global warming?
 (1) Carbondioxide (2) Natural gas
 (3) Sulphurdioxide (4) None of these
9. Which are the intermediate products of cheese making?
 (1) Curd (2) Whey
 (3) Both (1) and (2) (4) None of these
10. Which enzyme present in barley grains converts starch into maltose?
 (1) Lipase (2) Amylase
 (3) Hexokinase (4) None of these

LIFE SCIENCE

11. Which of the following contains unisexual flowers?
 (1) Cucumber (2) Mustard
 (3) Rose (4) None of these
12. In plants, the veins of the leaf form a network like structure in:
 (1) Parallel venation (2) Reticulate venation
 (3) Both (1) and (2) (4) None of these
13. Which of the following is an example for endangered flora?
 (1) Sal and wild mango
 (2) Teak and banyan tree
 (3) Banyan tree and mahagony
 (4) None of these
14. Which of the following uses tentacles to kill the prey with its stinging cells?
 (1) Amoeba (2) Earthworm
 (3) Hydra (4) None of these
15. Oral rehydration salt solution is beneficial for anybody who has:
 (1) Fever (2) Malaria
 (3) Diarrhoea (4) None of these
16. Microorganisms feed upon dead plants and animals tissue and converts them into dark coloured substances called:
 (1) Fertilizers (2) Manuares
 (3) Pesticides (4) None of these

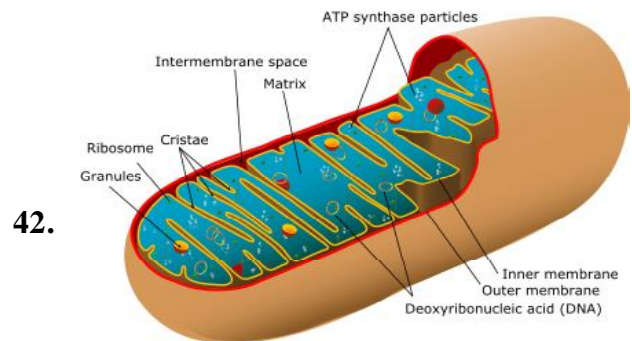
17. Response of plants and animals to light is:
 (1) Phototropism (2) Phototaxy
 (3) Parthenocarp (4) None of these
18. The flat, chisel-shaped teeth well adapted for cutting and biting of food items are known as:
 (1) Incisors (2) Canines
 (3) Premolars (4) None of these
19. Microorganisms act upon dead plants to produce:
 (1) Mushroom (2) Humus
 (3) Wood (4) None of these
20. The main excretory product in human beings:
 (1) Ammonia (2) Uric acid
 (3) Urea (4) None of these
21. Water reaches greater heights in the trees because of suction pull caused by:
 (1) Photosynthesis (2) Transpiration
 (3) Respiration (4) None of these
22. In human beings, haemoglobin is present in which cells?
 (1) Red blood cell (2) White blood cell
 (3) Platelets (4) None of these
23. Solubility of gases in water:
 (1) Decrease with decrease in pressure
 (2) Decrease with increase in pressure
 (3) Increase with increase in pressure
 (4) None of these
24. Which of the following can reproduce both sexually and asexually?
 (1) Yeast (2) Amoeba
 (3) Spirogyra (4) None of these
25. Water that does not form lather easily with soap is:
 (1) Hard water (2) Soft water
 (3) Saline water (4) None of these
26. Plants produced by vegetative propagation:
 (1) Are exact copies of the parent plant
 (2) Takes more time than those produced from seeds
 (3) Both (1) and (2) (4) None of these

27. Pashmina shawls are obtained from which animal skin?
 (1) Angora (2) Kashmiri goat
 (3) Alpaca (4) None of these
28. Eri is a type of :
 (1) Wool (2) Cotton
 (3) Silk (4) None of these
29. The bottom part of the pistil where seeds are formed is:
 (1) Ovary (2) Sepal
 (3) Embryo (4) None of these
30. Digestive juice is not secreted by:
 (1) Stomach (2) Large intestine
 (3) Small intestine (4) None of these
31. Which is the chemical used in starch test?
 (1) Copper sulphate (2) Caustic soda
 (3) Iodine (4) None of these
32. Which component in food removes constipation?
 (1) Vitamins (2) Roughage
 (3) Carbohydrates (4) None of these
33. Which of the following does not have gills?
 (1) Octopus (2) Squids
 (3) Whales (4) None of these
34. Cone shaped trees with sloping branches are found in:
 (1) Grass lands (2) Mountain region
 (3) Deserts (4) None of these
35. Movement of water molecules from a weaker solution to a stronger solution through a semipermeable membrane:
 (1) Diffusion (2) Osmosis
 (3) Circulation (4) None of these
36. A small tube that carries urine from the urinary bladder and expels it outside is:
 (1) Urethra (2) Ureter
 (3) Oesophagus (4) None of these
37. Proteins which accelerate chemical reactions in our body:
 (1) Haemoglobin (2) Enzymes
 (3) Myoglobin (4) None of these

38. The boiling point of water at hill stations will be:
 (1) $>100^{\circ}\text{C}$ (2) 100°C
 (3) $<100^{\circ}\text{C}$ (4) None of these
39. Spore formation is a means of asexual reproduction in:
 (1) Sponges (2) Ferns
 (3) Cactus (4) None of these
40. In human beings the inner wall of the small intestine has many finger-like out growths called
 (1) Vacuoles (2) Micelles
 (3) Villi (4) None of these

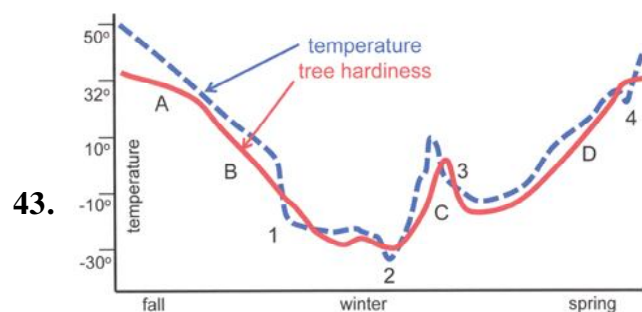
INTERACTIVE SECTION

41. Which of the following is the process of choosing parent organisms for the characteristics that is wanted in their offspring?
 (1) Active selection (2) Reproductive selection
 (3) Selective breeding (4) None of these



Billions of years ago, organisms had varied types of mitochondria and natural selection chose them to survive through the changing environments and eventually they became better and better at producing ATP. This change in structure so that it can execute its function more effectively is termed as:

- (1) Adaptation (2) Mutation
 (3) Mimicry (4) None of these

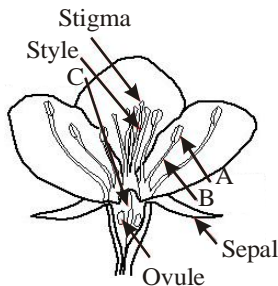


The above graph shows the impact of temperature change on winter hardiness of trees. The points 1 to 4 represent the damage situations.

Here point '3' represents:

- (1) Injury at temperatures lower than the hardening capability
- (2) Injury due to rise and fall of mid winter temperature
- (3) Injury due to spring frost
- (4) None of these

44. A diagram of the flower is given below. Which part represents the Anther?

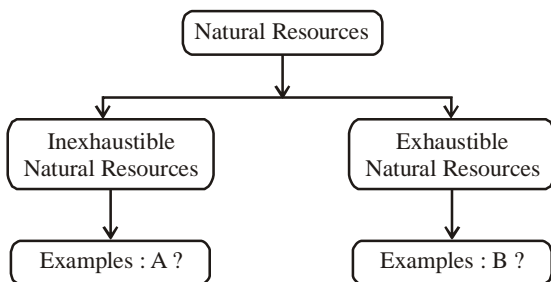


- (1) B
- (2) C
- (3) A
- (4) None of these

45. Which are the major environmental controversies about biotechnology?

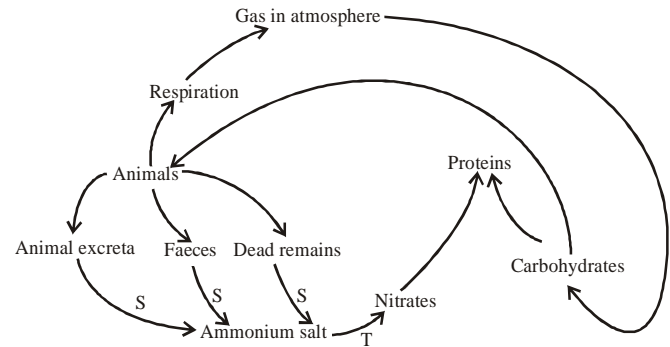
- (1) Dangerous organisms could be unleashed unintentionally in the environment
- (2) Repelling insects will upset the balance of nature
- (3) Both (1) and (2)
- (4) None of these

46. Observe the given chart and answer what will come in the place of '?'



- (1) A- Forest, Sunlight, B- Coal, Air
- (2) A- Sunlight, Air, B- Coal, Petroleum
- (3) A- Sunlight, Petroleum B- Air, Coal
- (4) None of these

47. The given diagram shows two interlinked natural cycles. Find out the processes which S and T represent.



- (1) S - Nitrification, T - Ammonification
- (2) S - Decomposition, T - Nitrification
- (3) S - Decomposition, T - Ammonification
- (4) None of these

48. Which of the following have strong bioluminescence and has been a source of fascination for sailors and other mariners as their ships pass through waves which become lit up by these organisms at night?

- (1) Dinoflagellates
- (2) Diatoms
- (3) Seagrass
- (4) None of these

49. In biotech crops like rice, increased levels of which nutrient aid in reducing vitamin A deficiencies and improved oil compositions in canola, soyabean and corn?

- (1) Cobalt
- (2) Zinc
- (3) Beta-carotene
- (4) None of these

50. Why forests are called the 'green lungs'?

- (1) They are good for lungs
- (2) They provide carbondioxide for animal respiration
- (3) They maintain the balance of oxygen and carbondioxide in the atmosphere
- (4) None of these



END OF THE EXAM