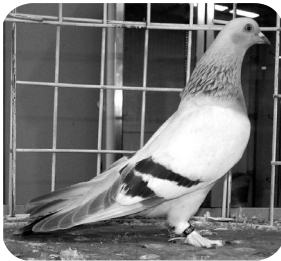






GENERAL KNOWLEDGE

- Highest mountain in North America
 - Mount Everest
 - Denali
 - Nuptse
 - Chomo Lonzo
- What is the chemical name of Tear Gas?
 - Chloroacetophenone
 - Nitrogen dioxide
 - Diazomethane
 - Carbon monoxide
- What is the national flower of Pakistan?
 - Sunflower
 - Lotus
 - Jasmine
 - Orchid
- Which of the following disease is hereditary?
 - Cancer
 - Hemophilia
 - Tuberculosis
 - None of these
- What is the chemical name of Limestone?
 - Calcium Carbonate
 - Calcium Bicarbonate
 - Sodium Carbonate
 - Sodium Bicarbonate
- Science differ from art and religion because it
 - describes the human experience
 - discovers and records natural phenomena
 - describes the source, purpose, and meaning of everything
 - is based on faith
- Two Volcanic Islands in India are
 - Narcondam and Barren
 - Andaman and Nicobar Islands
 - Pamban and Barren
 - Kavaratti and New Moor
- Which of the following animals does not lays eggs?
 - 
 - 
 - 
 - 
- What is the order of the environmental 3R's used to indicate the best ways to conserve natural resources?
 - Reduce, Recycle, Reuse
 - Reduce, Reuse, Recycle
 - Reuse, Recycle, Reduce
 - Recycle, Reuse, Reduce
- In photosynthetic process, atmospheric carbon dioxide is _____ to carbohydrates.
 - Oxidised
 - Reduced
 - Neutralised
 - Burnt

LIFE SCIENCE

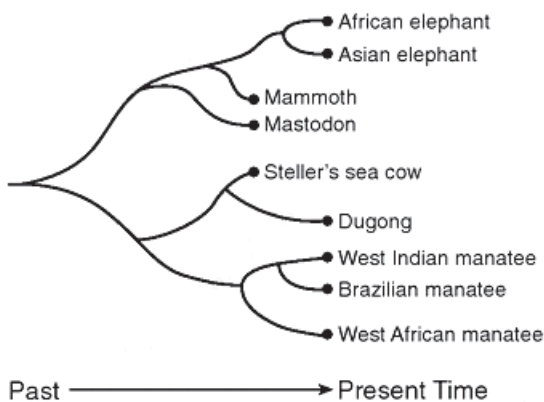
11. Which population of organisms would be in greatest danger of becoming extinct?

- (1) A population of organisms having few variations living in a stable environment.
- (2) A population of organisms having few variations living in an unstable environment.
- (3) A population of organisms having many variations living in a stable environment.
- (4) A population of organisms having many variations living in an unstable environment.

12. In animals, the normal development of an embryo is dependent on

- (1) fertilization of a mature egg by many sperm cells
- (2) production of new cells having twice the number of chromosomes as the zygote
- (3) production of body cells having half the number of chromosomes as the zygote
- (4) mitosis and the differentiation of cells after fertilization has occurred

13. The relationship of some mammals is indicated in the diagram below.



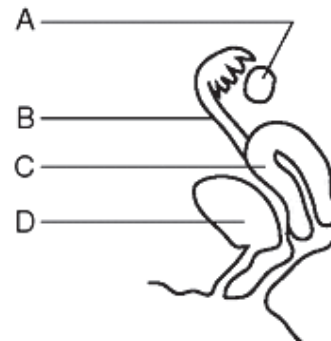
Which statement about the African elephant is correct?

- (1) It is more closely related to the mammoth than it is to the West African manatee.
- (2) It is more closely related to the West Indian manatee than it is to the mastodon.

(3) It is not related to the Brazilian manatee or the mammoth.

(4) It is the ancestor of Steller's sea cow.

14. Structures in a human female are represented in the diagram below.



A heavy dose of radiation would have the greatest impact on genetic information in future offspring if it reached gametes developing within structure

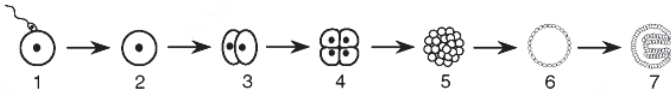
- (1) A
- (2) B
- (3) C
- (4) D

15. Organism X appeared on Earth much earlier than organism Y. Many scientists believe organism X appeared between 3 and 4 billion years ago, and organism Y appeared approximately 1 billion years ago. Which row in the chart below most likely describes organisms X and Y?

Row	Organism X	Organism Y
(A)	simple multicellular	unicellular
(B)	complex multicellular	simple multicellular
(C)	unicellular	simple multicellular
(D)	complex multicellular	unicellular

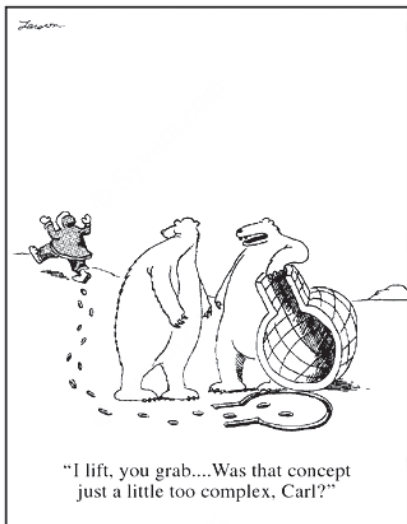
- (1) A
- (2) B
- (3) C
- (4) D

16. The sequence of diagrams below represents some events in a reproductive process.



To regulate similar events in human reproduction, what adaptations are required?

- (1) the presence of genes and chemicals in each cell in stages 1 to 7
 - (2) an increase in the number of genes in each cell in stages 3 to 5
 - (3) the removal of all enzymes from the cells in stage 7
 - (4) the elimination of mutations from cells after stage 5
17. The most immediate response to a high level of blood sugar in a human is an increase in the
- (1) muscle activity in the arms
 - (2) blood flow to the digestive tract
 - (3) activity of all cell organelles
 - (4) release of insulin
18. Which ecological term best describes the polar bears in the cartoon below?



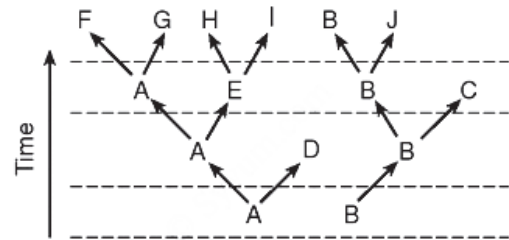
(adapted)

- (1) herbivores
- (2) parasites
- (3) carnivores
- (4) producers

















19. A new island formed by volcanic action may eventually become populated with biotic communities as a result of

- (1) a decrease in the amount of organic material present
 - (2) decreased levels of carbon dioxide in the area
 - (3) the lack of abiotic factors in the area
 - (4) the process of ecological succession
20. Certain microbes, foreign tissues, and some cancerous cells can cause immune responses in the human body because all three contain
- (1) antigens
 - (2) enzymes
 - (3) fats
 - (4) cytoplasm

Use figure below to answer Q 21 and Q 22.



21. Which species was the first to become extinct?
- (1) E
 - (2) J
 - (3) C
 - (4) D
22. Which species appears to have been most successful in surviving changes in the environment over time?
- (1) A
 - (2) B
 - (3) C
 - (4) H
23. Gustatory receptors will detect _____.
- (1) Light
 - (2) Taste
 - (3) Smell
 - (4) Touch

24. If there is a deficiency of growth hormone the child becomes _____.
- (1) Blind (2) Mentally retarded
(3) Giant (4) Dwarf
25. The enzyme pepsin is inactive in stomach without the presence of
- (1) Nitric acid
(2) Hydrochloric acid
(3) Acetic acid
(4) Butyric acid
26. The F₂ phenotype ratio of a monohybrid cross studied by Mendel is
- (1) 1 : 1 (2) 2 : 1
(3) 3 : 1 (4) 4 : 1
27. How life might have originated on earth was experimentally shown by
- (1) Urey and Miller
(2) Oparin and Haldane
(3) Watson and Crick
(4) None of the above
28. In a terrestrial ecosystem the biomass of _____ should be the most.
- (1) Herbivore (2) Carnivore
(3) Producer (4) Any one of the above
29. Identify the proper food chain.
- (1)  →  →  → 
- (2)  →  →  → 
- (3)  →  →  → 
- (4)  →  →  → 
30. Conservation of wildlife includes
- (1) Preventing poaching of animals.
(2) Construction of National parks and sanctuaries.

- (3) Ban on trading endangered species
(4) All of the above
31. Continuous addition of sugars in 'fed batch' fermentation is done to
- (1) Degrade sewage (2) Produce methane
(3) Obtain antibiotics (4) Purify enzymes
32. Advancement in genetic engineering has been possible due to the discovery of
- (1) Oncogenes
(2) Transposons
(3) Restriction endonuclease
(4) Exonucleases
33. DNA is found in



- (1) Chromosomes (2) Plastids
(3) Mitochondria (4) All of the above
34. The coconut water and the edible part of coconut are equivalent to
- (1) Mesocarp (2) Embryo
(3) Endosperm (4) Endocarp
35. Even in absence of pollinating agents seed-setting is assured in
- (1) Salvia (2) Fig
(3) Commelina (4) Zostera
36. Largest amount of urea is normally carried by
- (1) Hepatic portal vein
(2) Renal artery
(3) Hepatic artery
(4) Hepatic vein

37. In a standard ECG which one of the following alphabets is the correct representation of the respective activity of the human heart?

- (1) P-depolarization of atria
- (2) R-repolarization of ventricles
- (3) S-start of systole
- (4) T-end of diastole

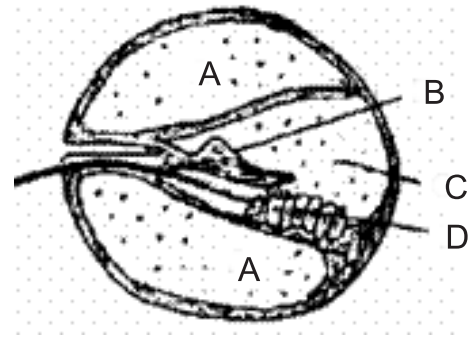
38. What is true about ribosomes?

- (1) These are found only in eukaryotic cells.
- (2) These are self-splicing introns of some RNAs.
- (3) The prokaryotic ribosomes are 80S, where “S” stands for sedimentation coefficient.
- (4) These are composed of ribonucleic acid and proteins.

39. In *Escherichia coli*, the ‘lac’ operon is required for the transport of _____.

- (1) Lactose
- (2) Lactase
- (3) Lac insect
- (4) The number 1,00,000

40. Given below is a diagrammatic cross section of a single loop of human cochlea.

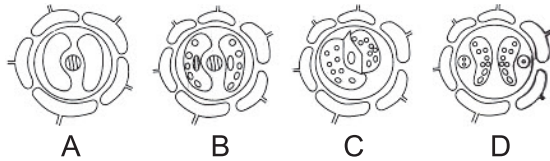


Which one of the following options correctly represents the names of three different parts?

- (1) A: Perilymph, B: Tectorial membrane, C: Endolymph
- (2) A: Tectorial membrane, C: Perilymph, D: Secretory cells
- (3) B: Endolymph, D: Sensory hair cells, A: Serum
- (4) C: Sensory hair cells, A: Endolymph, B: Tectorial membrane

INTERACTIVE SECTION

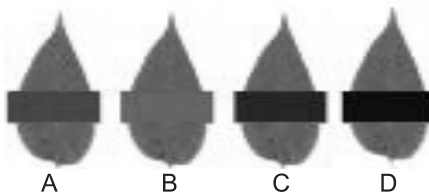
41. Students observed the epidermal peel of a leaf under the high power of a microscope. The following are the sketches made by them.



The correct sketch is

- (1) A
- (2) B
- (3) C
- (4) D

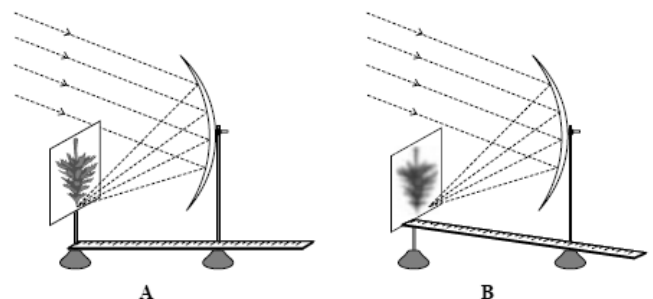
42. In an experiment on photosynthesis, students were instructed to cover a portion of a leaf of a de-starched potted plant with opaque paper as shown in the figure.

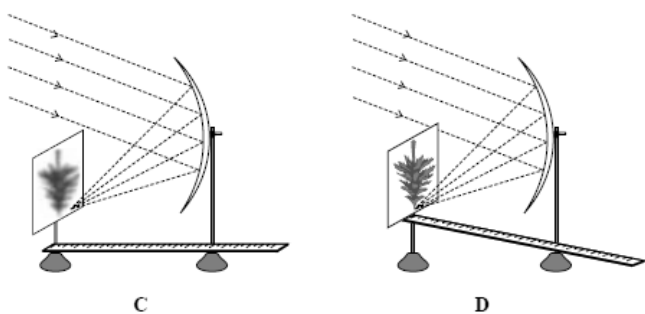


“A” covered one of the leaves with red strip, “B” with green, “C” with blue and “D” with black. When the starch test was done on the leaves after 4 hours, the result showed no starch in

- (1) the portion covered with red, green and blue strips.
- (2) the portion covered with green strip.
- (3) the portion covered with black and blue strips.
- (4) any of the covered portions.

43. Four students A, B, C and D carried out measurements of focal length of a concave mirror as shown in the four diagrams.





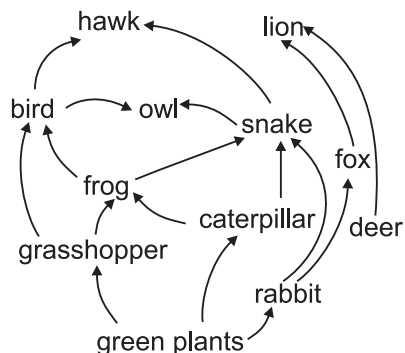
The best result will be obtained by student

- (1) A (2) B
(3) C (4) D

44. Which animal has modified ecosystems more than any other animal and has had the greatest negative impact on world ecosystems?

- (1) gypsy moth (2) zebra mussel
(3) human (4) shark

45. A food web is shown below, which organisms are necessary for the recycling of oxygen?



- (1) green plants
(2) frog
(3) snake
(4) bird

46. Bromine is a

- (1) Black Solid
(2) Red Liquid
(3) Colourless Gas
(4) Highly inflammable Gas

47. Tetraethyl lead is used as

- (1) Pain Killer (2) Fire Extinguisher
(3) Mosquito Repellent (4) Petrol Additive

48. The property of a substance to absorb moisture from the air on exposure is called

- (1) Osmosis (2) Deliquescence
(3) Efflorescence (4) Desiccation

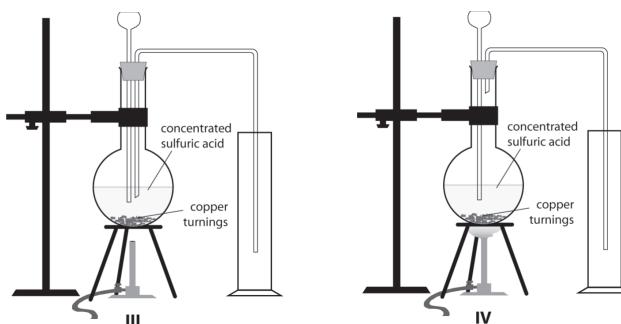
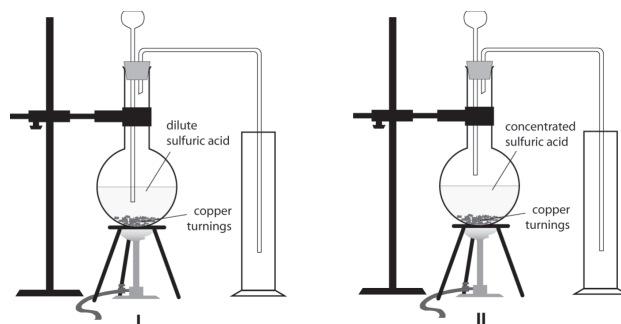
49. A student is given a permanent slide showing binary fission in Amoeba. The following are the steps in focussing the object under the microscope.

- (i) Place the slide on the stage; look through the eyepiece and adjust the mirror and diaphragm to get even illumination.
(ii) Look through the eyepiece and raise the objective using coarse adjustment until the object is focused.
(iii) Make the focus sharp with the help of fine adjustment.
(iv) Look through the eyepiece and move the slide until the object is visible.

The proper sequence of steps is

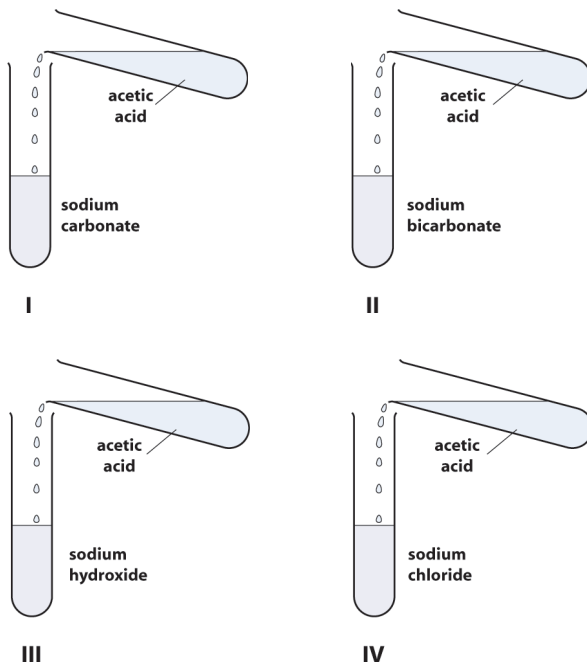
- (1) (i), (iii), (iv), (ii). (2) (ii), (iii), (iv), (i).
(3) (iv), (iii), (ii), (i). (4) (i), (iv), (ii), (iii).

50. For preparing sulphur dioxide in the laboratory the correct set up is shown in figure



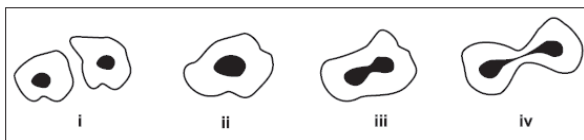
- (1) I (2) II
(3) III (4) IV

51. A student added acetic acid to test tubes I, II, III and IV and then introduced a burning candle near the mouth of each test tube.



The candle would not be extinguished near the mouths of test tubes

- (1) I and II.
 - (2) II and III.
 - (3) III and IV.
 - (4) I and IV.
52. The following figures illustrate binary fission in Amoeba in an incorrect sequence.



The correct sequence is

- (1) (i), (iii), (iv), (ii).
 - (2) (ii), (iii), (iv), (i).
 - (3) (iv), (iii), (ii), (i).
 - (4) (iii), (iv), (ii), (i).
53. The teacher instructed a student to place a healthy potted shoe flower plant in a dark room for 24 hours prior to an experiment on photosynthesis. The purpose of placing it in a dark room is
- (1) to increase the intake of CO_2 .
 - (2) to activate the chloroplasts in the leaves.

- (3) to destarch the leaves.
- (4) to denature the enzymes in the leaves.

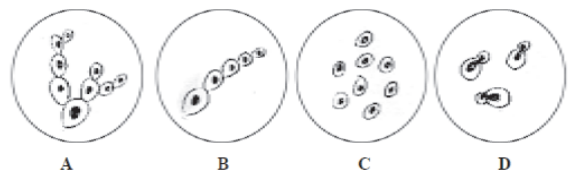
54. In an experiment to show that sunlight is necessary for photosynthesis, the leaf is boiled in alcohol for a few minutes using a water bath. It is essential because

- (1) alcohol is highly volatile.
- (2) steam from the water bath heats the leaf rapidly.
- (3) steam from the water bath dissolves the chlorophyll.
- (4) alcohol is flammable.

55. A student soaked 10 g of raisins in 50 mL of distilled water in two beakers A and B each. She maintained beaker A at 25°C and beaker B at 50°C . After an hour, the percentage of water absorbed will be

- (1) the same in both A and B.
- (2) more in A than in B.
- (3) more in B than in A.
- (4) exactly twice as much in B as in A.

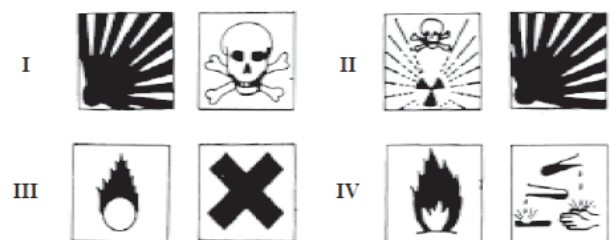
56. The following are the sketches made by some students.



The sketch not illustrative of budding in yeast is

- (1) A
- (2) B
- (3) C
- (4) D

57. The pair of safety symbols you notice on the bottles of commercial acetic acid available in the laboratory is shown in



- (1) I
- (2) II
- (3) III
- (4) IV

58. A student dissolved 5 g of sugar in 100 mL of distilled water in beaker A. She dissolved 100 g of sugar in 100 mL of distilled water in beaker B. Then she dropped a few raisins of equal weight in each beaker. After two hours she found the raisins in A swollen and those in B shrunken. The inference drawn is that

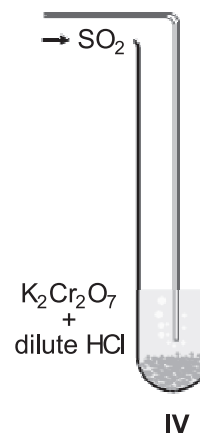
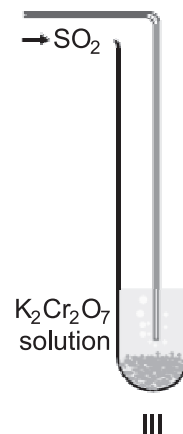
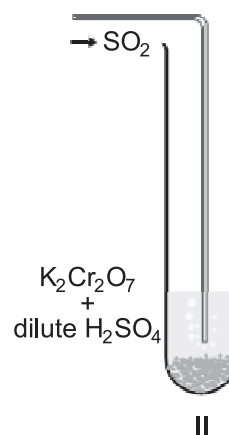
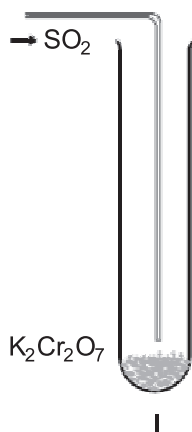
- (1) sugar concentration of raisins is lower than that of solution A and higher than that of solution B.
- (2) sugar concentration of raisins is higher than that of solution A and lower than that of solution B.
- (3) in B the cell membrane of raisins was damaged resulting in leaching.
- (4) in A the permeability to water of the cell membrane of raisins was enhanced.

59. The figure given below illustrates the step leading to



- (1) binary fission in Amoeba.
- (2) longitudinal binary fission in Paramecium.
- (3) transverse binary fission in Euglena.
- (4) transverse binary fission in Paramecium.

60. Four different arrangements used by students to test the effect of sulphur dioxide on potassium dichromate are shown below.



The correct arrangement is shown in

- (1) I
- (2) II
- (3) III
- (4) IV



END OF THE EXAM