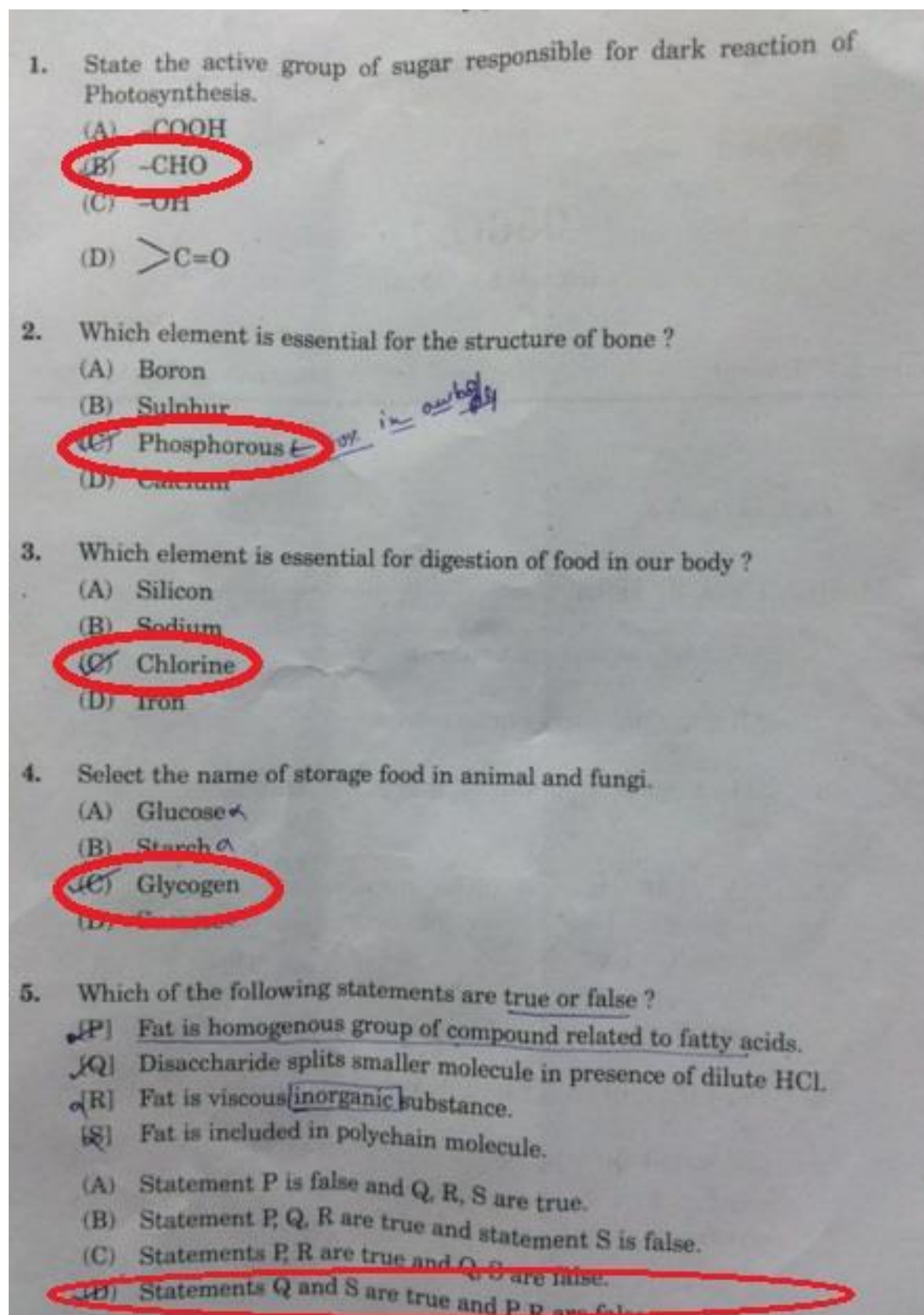


056(E)

(November, 2015)

*e : 2.30 Hours]**[Maximum Marks : 100****Instructions :***

1. There are **100** questions in this question paper.
2. All the questions are **compulsory**.
3. All questions carry **equal** marks.
4. Select proper option to make the statement correct.
5. The OMR sheet is given for answering the questions. The answer of each question is represented by (A) ○, (B) ○, (C) ○, (D) ○. Darken the circle ● of the correct answer with ball-pen.
6. Read the questions carefully before you answer.
7. Set No. of Question Paper printed on the upper-most right side of the Question Paper is to be written in the column provided in the OMR sheet.



6. Which bond is a necessary information of polynucleotide chain of DNA ?

- (A) Glycosidic bond ✗
- (B) Hydrogen bond ✗
- (C) Disulphide bond ✗
- (D) Phosphodiester bond**

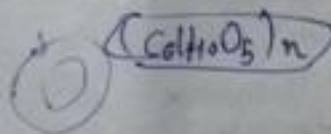
7. Select the correct complementary pair for RNA.

- (A) Thymine - Uracil
- (B) Adenine - Thymine
- (C) Adenine - Guanine
- (D) Adenine - Uracil**

A = U - 1u only RNA

8. Write the name of substance having $(C_6H_{10}O_5)_n$ in its general formula which take part in the secondary wall of cell.

- (A) Glycogen ✗
- (B) Cellulose ✗
- (C) Lignin ✗**
- (D) Chitin ✗



9. Which is the reactive group of female sexual hormone Progesterone?

~~(A) $>C=O$ and $-COOH$ both~~

(B) $>C=O$ ✗

(C) $-COOH$ ✗

(D) $-OH$ ✗

*ether
ether*

10. Which of the molecule is an Amphoteric ?

(A) Starch ✗

(B) Glycine

(C) Glucose

(D) Fructose

11. Which of the following enzymes perform bidirectional reaction ?
(A) Fructose isomerase
(B) ~~Glucose~~
(C) Cytochrome oxidase
(D) Succinic dehydrogenase

12. The organic molecule which are loosely bound with Apoenzyme known as
(A) All of given three options.
(B) ~~Enzyme~~
(C) Co - enzyme
(D) Co - factor

13. State the types of enzyme which connect two molecules with the help of energy from $H_2P_2O_7$?
(A) Oxidoreductase
(B) Synthetase
(C) ~~Hydrolase~~
(D) ~~Transferase~~

14. *m*-RNA is a polymer of
(A) ~~Ribonucleosides~~
(B) ~~Deoxyribonucleotides~~
(C) Ribonucleotides
(D) ~~Deoxyribonucleosides~~

15. State the name and location of protein having properties of immunity power.
(A) ~~Leucocytes - Immunoglobulin~~
(B) ~~Erythrocyte - Membrane~~
(C) Blood plasma - Immunoglobulin
(D) ~~Erythrocyte - Globular~~

16. Which of the following properties are applied to enzyme ?

☒ [P] All the enzymes are made up of protein.

☒ [Q] Every enzyme becomes active at specific pH.

☒ [R] Every enzyme do not work at specific temperature.

☒ [S] Every enzyme becomes active in acidic medium.

(A) R and P

☒ (B) P and Q

(C) Q and R

(D) P and R

17. Which enzyme participates in the process of Glycolysis ?

☒ (A) Cytochrome oxidase

(B) Invertase

(C) Maltase

☒ (D) Aldolase

18. In presence of which elements, the Enolase become active ?

(A) Manganese, Copper, Cobalt

(B) Magnesium, Sodium, Zinc

☒ (C) Magnesium, Manganese, Zinc

(D) Calcium, Magnesium, Zinc

19. Write the Anticodon of *t*-RNA, when the genetic code is ACG on template chain of DNA.

(A) UAC

(B) ACG

☒ (C) UGC

(D) GAC

20. State the name of fibrous protein.
- (A) Fibrinogen ✓
 - (B) Globular protein
 - (C) Immunoglobulin ✗
 - (D) Myoglobin ✗
21. Which is the most abundant protein in animal world ?
- (A) Malanin
 - (B) Ribulose biphosphate carboxylase.
 - (C) Collagen ✓
 - (D) Cholesterol
22. Name the protein which is found in locomotary organelle of Euglena.
- ✓(A) Myosin ✓
 - (B) Immunoglobulin ✗
 - (C) Malanin ✗
 - (D) Globular ✗
23. What is the number of amino acids with polar and neutral "R" group ?
- $7 - 2 = 5$
- (A) Two
 - (B) Three
 - ✓(C) Seven
 - (D) Eight

24. Which of the following aspects are necessary for functions and characteristics of plants?

☒ (A) All of the given three options.

(B) Habitats

(C) Nutrition

(D) Reproduction

25. What is the peculiarity of plants developed sporophylls for the first time?

(A) They are primitive embryophytic plants. \times

☒ (B) Zygote undergoes division to form embryo.

~~(C)~~ Fertilization takes place in presence of water.

(D) \times Gametophytic phase is main phase.

26. State the chromosomal set for P, Q, R shown in the diagram of alternation of generation.



~~(A)~~ $P = 2x$ $Q = 2x$ $R = x$

☒ (B) $P = x$ $Q = x$ $R = 2x$

~~(C)~~ $P = 2x$ $Q = x$ $R = x$

(D) $P = x$ $Q = 2x$ $R = 2x$

27. Botany investigates the internal and external structures of plants through and aspects.

(A) Evolutionary, Animal development.

~~(B)~~ Evolutionary, Genes development.

☒ (C) Evolutionary, Phylogenetical.

~~(D)~~ Evolutionary, Genes development.

28. True fruits are lacking in gymnosperms because

- (A) ~~absence of fruit coat.~~
- (B) ~~well-developed flowers are seen.~~
- (C) ~~ovules are embedded.~~
- (D) ~~absence of ovary.~~

29. Which of the following statements is correct of organism responsible for Alzheimer disease ?

- (A) ~~Genetic material in form of DNA.~~
- (B) ~~Complex body organization.~~
- (C) ~~Short RNA strand.~~
- (D) ~~Protective protein coat capsid.~~

30. Select the improper statement related with kingdom of multicellular consumers.

- (A) ~~They are multicellular, aquatic or terrestrial eukaryotic organisms.~~
- (B) ~~Cell wall is absent.~~
- (C) ~~They show variation in form, structure and reproduction.~~
- (D) ~~The body is simple and thalloid or differentiated into root, stem and leaves.~~

31. Which of the following series is not included in sub-class Polypetalae of plants having pentamerous flower ?

- (A) ~~Calyciflorae~~
- (B) ~~Inferae~~
- (C) ~~Thalamiflorae~~
- (D) ~~Disciflorae~~

32. What is the criterion based on which, the classification system was developed in 1969?


(A) Complexity of body structure and major ecological role.

(B) Species characteristics.

(C) Complexity of body structure.

(D) Major ecological role.

33. The organism shown in diagram is classified into which group by Woese? Give its specific characteristics.



(A) Bacteria domain, Photosynthesizing bacteria.

(B) Eubacteria, Gram negative bacteria.

(C) Archae bacteria, Gram positive bacteria.

(D) Eukarya domain, Photosynthesizing bacteria.

34. Select the odd one.

(A) Mould

(B) Sac fungi

(C) Club fungi

(D) Slime mould

35. Name the bacteria live in coal mines.

(A) Cyanobacteria

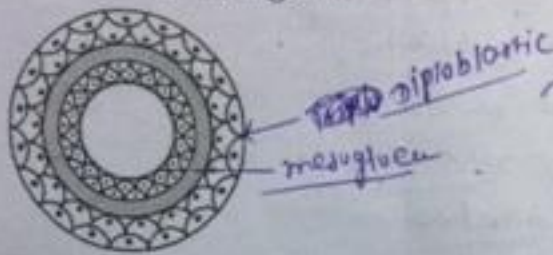
(B) Methanogens

(C) Thermoacidophiles

(D) Halobacter

- [10]
36. The peculiarities of vertebrate animals which show metamorphosis first time :
- (A) Only internal ear is present.
 - (B) Heart is two chambered
 - (C) Possess homodont teeth.
 - (D) Uric acid is released as an excretory substance.
37. Identify two animal groups which possess complete digestive tract with digestive glands.
- (A) Mollusca, Mammalia
 - (B) Platyhelminthes, Mammalia
 - (C) Coelenterata, Annelida
 - (D) Echinodermata, Hemichordata
38. State the name of excretory organ of animal that shows Parthenogenesis.
- (A) Branched excretory tubules.
 - (B) Sebaceous gland
 - (C) Green gland.
 - (D) Ocellum.
39. Assertion - A : Bryophytes are known as embryophytic plants.
Reason - R : They are complex and primitive embryophytic plants.
- (A) Assertion A is incorrect but Reason R is correct.
 - (B) Assertion A and Reason R both are correct. Reason R is correct explanation of Assertion A.
 - (C) Assertion A and Reason R both are correct but Reason R is not correct explanation of Assertion A.
 - (D) Assertion A is correct but Reason R is incorrect.

40. The given following statements are true or false related to given animal group in diagram.

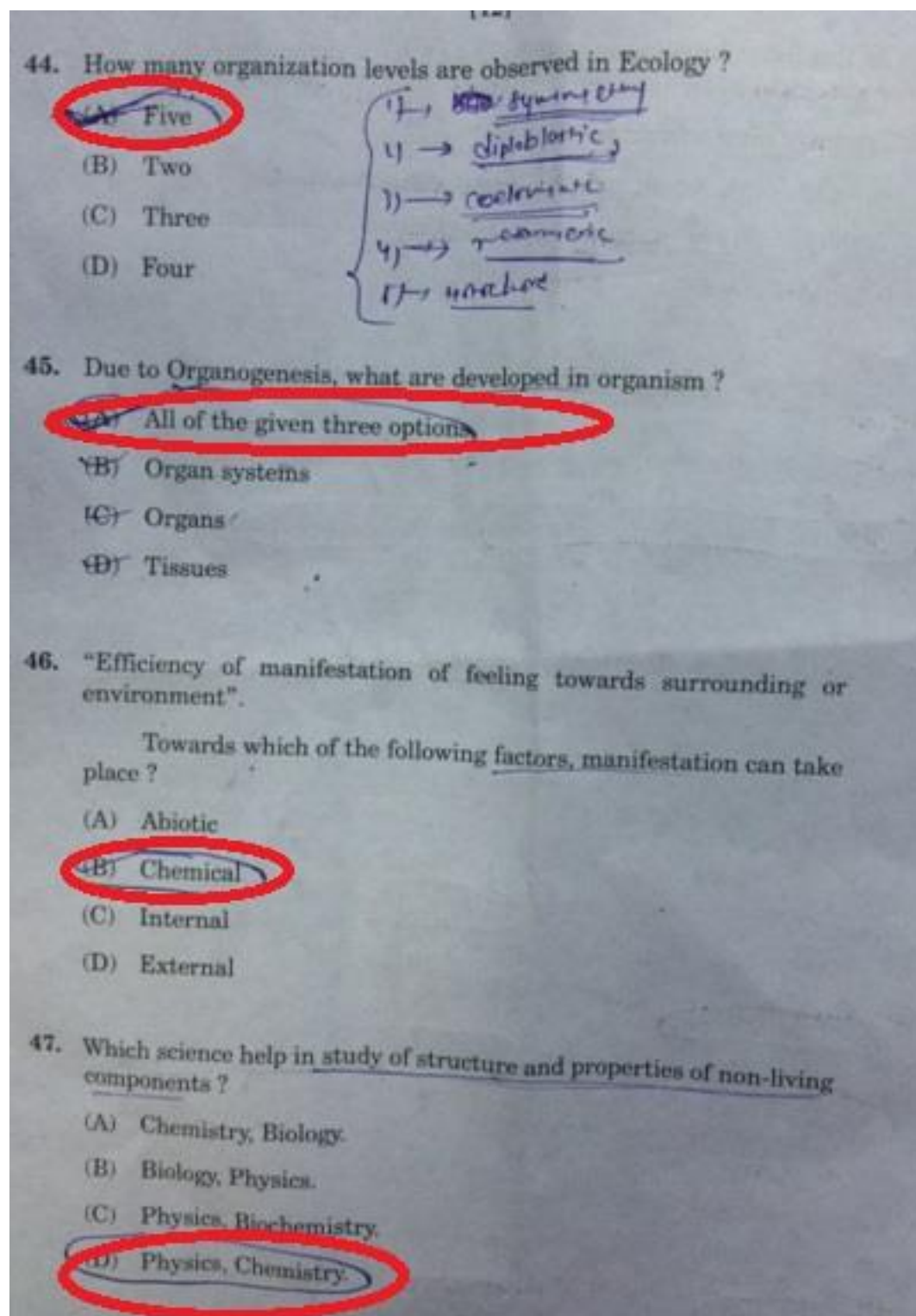


- ☒ P They possess collar cells.
☒ Q They live solitary or colonial life.
☒ R They show organ level of organization.
☒ S They have acellular mesoglea.
 (A) Statement P, Q, S are true and R is false.
☒ (B) Statement Q and S are true, while P and R are false.
 (C) Statement P is true, while Q, R, S are false.
 (D) Statement P and S are false, while R and S are true.

41. State the name and mode of life of the animal shown in the diagram.



- (A) Planaria, Ectoparasite
 (B) Planesia, Autotrophic
 (C) Liverfluke, Autotrophic
☒ (D) Liverfluke, Endoparasite
42. Which of the following animals is different in context to circulatory system?
- ☒ (A) Earthworm
 (B) Whale ✓
 (C) Octopus
☒ (D) Centipede
43. Which of the following two organisms have umbrella shaped structure?
- ☒ P Jelly fish
☒ Q Sea Urchin
☒ R Agaricus
☒ S Mucor
☒ (A) P and R
☒ (B) P and S
 (C) P and Q
 (D) Q and R



48. Which of the following statement is improper for a taxon present between species and family ?

~~(A)~~ A group of inter-related families. *for order*

~~(B)~~ Capacity of inbreeding and production of fertile offspring.

~~(C)~~ A group of genera which are closely related.

(D) A group of species having common ancestor.

49. Which organism are considered as more adaptive to their environment ?

~~(A)~~ Capable for transforming energy required to perform biological activities

(B) Develop character for sustaining influence on efficiency of breeding.

~~(C)~~ They are aware of their surrounding habitat.

~~(D)~~ Living organisms are not capable to sustain in the environment.

50. Which of following facility is required to grow an orchid plant of Mahabaleshwar in Indroda park ? *biological park*

~~(A)~~ Conservatory

~~(B)~~ Glass house

~~(C)~~ Cactus house

(D) Orchidium

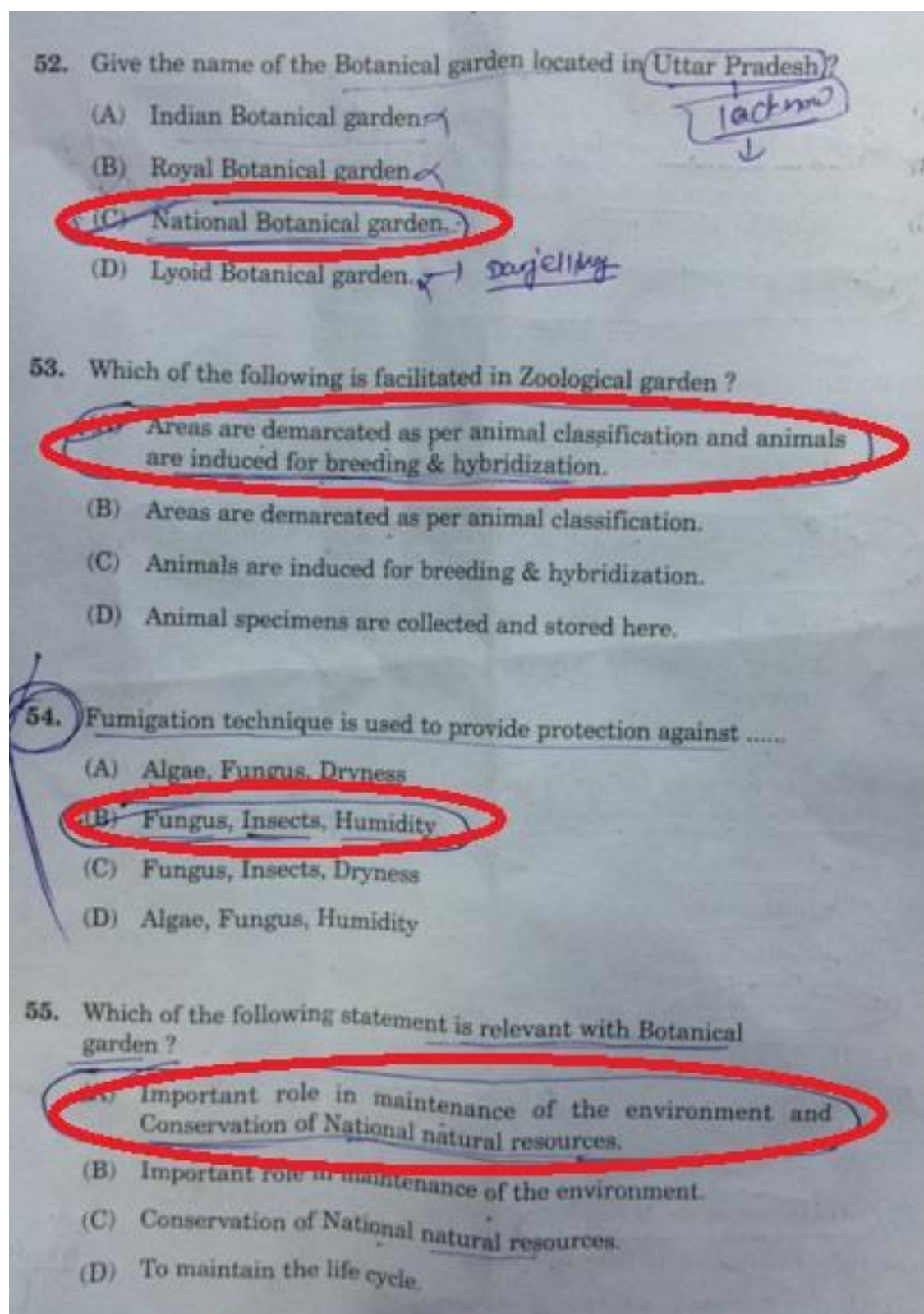
51. Which things can be observed when we move towards Species to Kingdom ?

~~(A)~~ All of the given three options.

(B) Increases the variation.

~~(C)~~ Reduces the number of Species.

~~(D)~~ Increases the similarities in characters.



56. On what basis, the plants are exhibited in botanical gardens ?
(A) According to family, genus or habitat.
(B) Based on kingdom.
(C) According to adaptation.
(D) According to evolution.
57. Where is the famous Zoological museum of Zoological Survey of India ?
(A) Jodhpur
(B) Lucknow
(C) Darjeeling
(D) Jaipur
58. Which of the following stage is responsible for breaking of haemoglobin in RBC ?
(A) Oocyst
(B) Meta Cryptomerozoite
(C) Trophozoite
(D) Schizont
59. Which of the following statements is not correct for classification ?
(A) Enable to know inter-relationships between the organisms.
(B) To provide ethno-botanical information.
(C) To provide geographical distribution of organisms.
(D) Conservation of endangered and threatened species.

60. Which of the organisms are migrated through Culex fatigan mosquito ?
- (A) Sporozoite
 - (B) Microsporum
 - (C) Gambusia ✓
 - (D) Micro filaria
61. Which of the following organ acts as main physical barrier related to immunity of our body ?
- (A) Eye
 - (B) Stomach
 - (C) Skin
 - (D) Buccal cavity
62. Which protein gives protection against viral infection to healthy cells ?
- (A) Tropomyosin
 - (B) Interferons ✓
 - (C) Triptofers ✓
 - (D) Actin ✓
63. In which stage, Plasmodium enter in liver cell and it becomes spherical in shape ?
- (A) Cryptomerozoite
 - (B) Streptococcus pneumoniae ✓
 - (C) Plasmodium vivax ✓
 - (D) Metacryptomerozoite

64. From which plant LSD (Lysergic acid diethylamine) is obtained ?

- ☒ (A) *Papaver somaniferum*
- (B) *Erythroxylum coca* ✓
- ☒ (C) *Claviceps purpurea* ✓
- (D) *Cannabis sativa* ✗

65. Which of the following statement is correct for "fluid-mosaic" model of plasma membrane ?

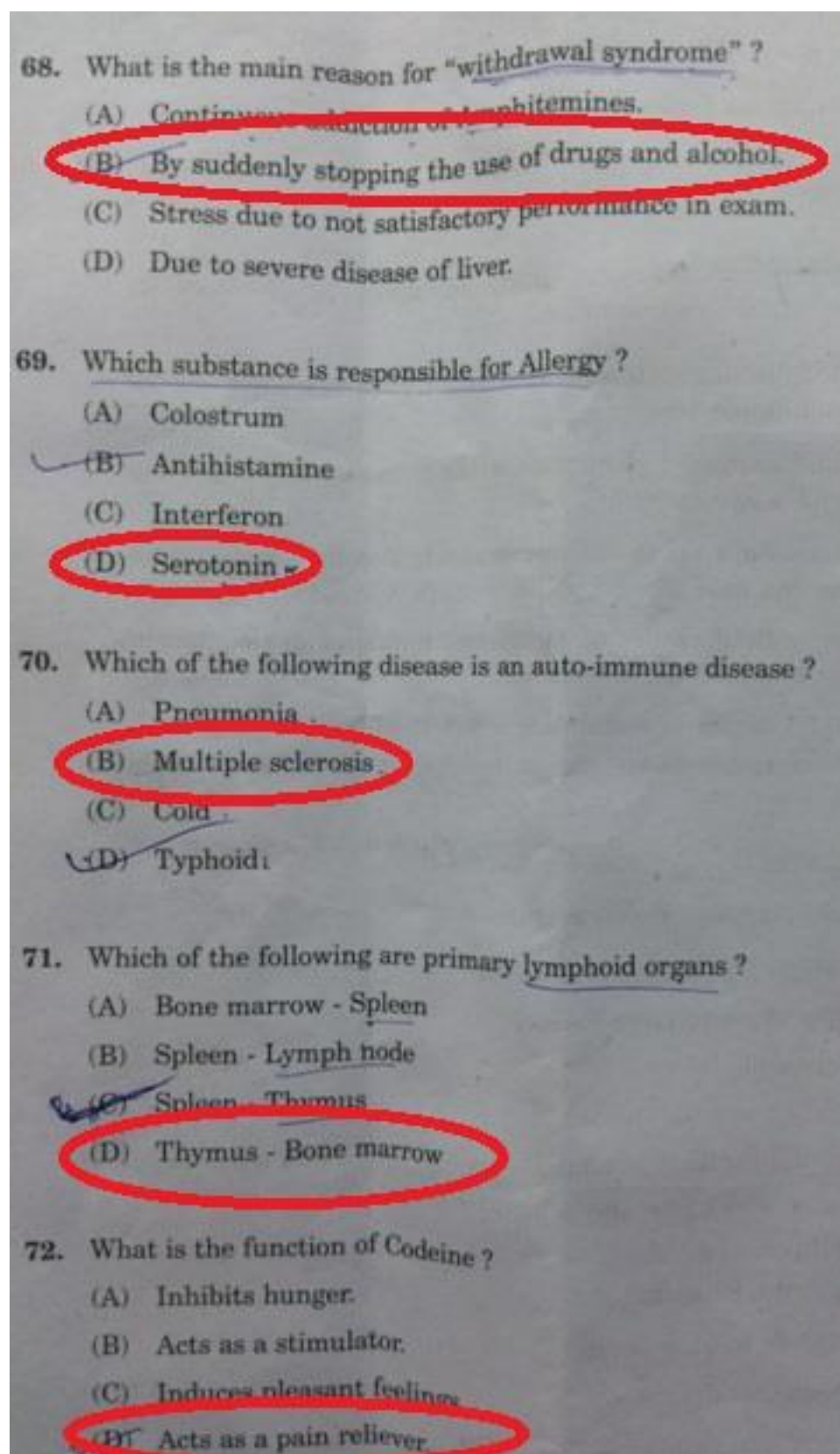
- (A) The fluid nature of membrane is due to association of protein and lipid is hydrophobic.
- ☒ (B) The semi-fluid nature of membrane is due to association of protein and lipid is hydrophilic.
- ☒ (C) The semi-fluid nature of membrane is due to association of protein and lipid is hydrophobic.
- (D) The fluid nature of membrane is due to association of protein and lipid is hydrophilic.

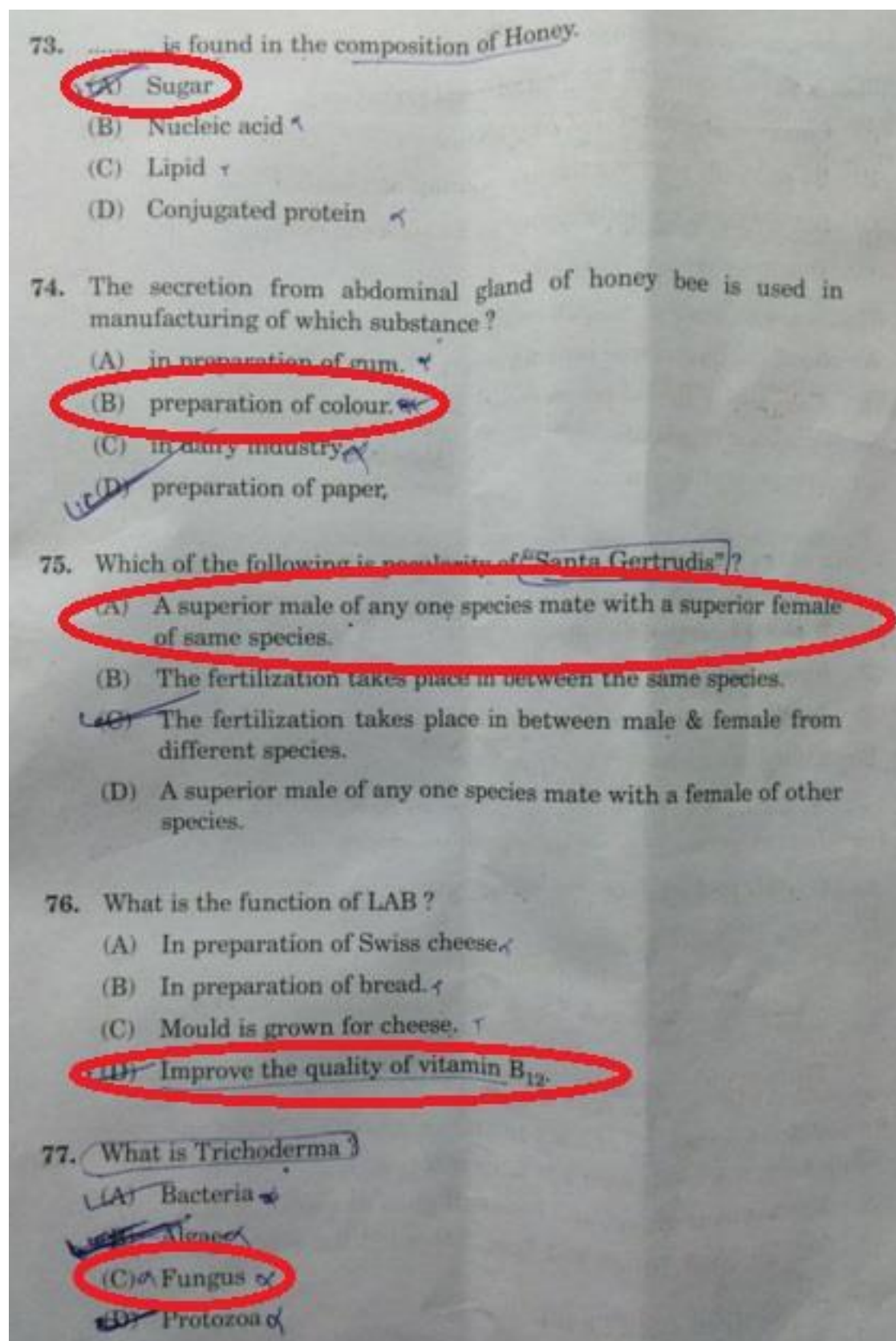
66. Which organism is responsible for ringworm ?

- ☒ (A) *Microsporum* and *Epidermo-phyton*.
- (B) *Microsporum*.
- (C) *Polymorpho-leucocytes*.
- (D) *Epidermo-phyton*.

67. Which bond is essential for joining of polypeptide chain responsible for immunity and name the mineral element taking part in its composition ?

- ☒ (A) Ester bond, Potassium.
- ☒ (B) Disulphide bond, Sulphur. ✓
- (C) Dipeptide bond, iron. ✓
- (D) Glycosidic bond, Magnesium.





78. Which organelles are formed due to extension of plasma membrane ?

(A) ~~Tubules - Lysosomes~~

(B) ~~Mesozome - Ribosome~~

(C) ~~Vacuole - Lysosomes~~

(D) Mesozome - Vacuole ✓

79. What is the function of smooth endoplasmic reticulum ?

(A) ~~All of the given functions~~

(B) Synthesis of steroid hormones ✓

(C) ~~Synthesis of protein~~

(D) ~~Synthesis of enzymes~~

80. Which of the following point is considered for producing new genetic variety through plant breeding ?

(A) Increases the growth rate.

(B) Increases the disease resistance capacity of plants.

(C) Increases duration of reproduction.

(D) Evaluation and selection of parents.

81. For which purpose, the genetically modified species are used ?

(A) Formation of cell biomass.

(B) Rapid clone expansion.

(C) ~~Formation of genetically modified plant.~~

(D) Rapid clone expansion & formation of genetically modified plant.

82. Assertion A - Genetic material is found in the nucleus of animal cell.
Reason R - It is made up of RNA and it regulate the process of cell.

(A) Assertion A is incorrect but Reason R is correct.

(B) Assertion A is correct and Reason R gives its explanation.

(C) Assertion A is correct and Reason R is not the explanation of Assertion A.

(D) Assertion A is correct but Reason R is incorrect.

83. Match the Column-I and Column-II.

Column-I	Column-II
(i) Lysosome	(p) Enzymes necessary for dark reaction.
(ii) Vacuole	(q) Disintegration of worn out cell.
(iii) Chloroplast	(r) Components are necessary for oxidative phosphorylation.
(iv) Mitochondria	(s) Induce osmotic pressure in cell.

(A) (i-r) (ii-s) (iii-q) (iv-p)
(B) (i-s) (ii-q) (iii-p) (iv-r)
(C) (i-p) (ii-s) (iii-q) (iv-r)
(D) (i-q) (ii-s) (iii-p) (iv-r)

84. State the two sub-units of ribosome in Eukaryotic cell.

- (A) 60S and 40S
 (B) 50S and 30S
 (C) 60S and 40S
 (D) 40S and 40S

85. Which of the following statements is improper?

- (A) Active transport takes place against concentration gradients.
 (B) Suicidal organelle is surrounded by two layers.
 (C) Mitochondria is semi-replicating organelle.
 (D) The final shape of cell-theory is given by Rudolf Virchow.

86. Which substances are synthesized in organelle given in diagram?



- (A) Glycoproteins, Glycolipids.
 (B) Glycolipids, Phospholipids.
 (C) Phospholipid, Lipoproteins.
 (D) Lipoproteins, Glycoproteins.

87. Write the name of stage of Mitosis given in diagram.



- (A) Telophase
- (B) Prophase
- ☒ (C) Metaphase
- (D) Anaphase

88. Which two units of organelle are arranged at right angle during interface stage of cell cycle ?

- (A) Peroxisome
- (B) Mitochondria
- ☒ (C) Centrioles
- (D) Chloroplast

89. Which of the following pair is incorrect ?

- (A) Zygotene - Synapsis.
- ☒ (B) G_1 phase - Synthesis of new DNA.
- (C) Telophase - Chromatin material can be seen.
- ☒ (D) Prophase - Disappearance of nucleolus.

90. In which stage of cell-division, counting of chromosomes is possible from onion root tip ?

- (A) Anaphase
- (B) Telophase
- ☒ (C) Metaphase
- (D) Prophase

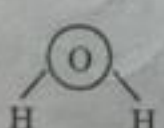
91. Which components take part in bio-chemical reaction of living organisms ?
(A) None of the given three options.
(B) Elements
(C) Atoms
(D) Elements and atoms both.
92. Which bond is formed in between "H" and "O" atom in water molecule ?
(A) Covalent bond
(B) Glycosidic bond
(C) Ester bond
(D) Phosphodiester bond
93. Which of the following statements are true or false ?
[P] Mitosis is responsible to maintain the number of chromosomes in all cells.
[Q] More than two organisms come into existence due to asexual reproduction.
[R] Haploid chromosomes are formed in newly formed cells after meiosis.
[S] After meiosis, each daughter cell has double DNA chromatid strands.
(A) All the given options are true.
(B) Statements P, Q, R are true but S is false.
(C) Statements P, R are true but Q and S are false.
(D) Statements R, S are true but P and Q are false.
94. What is Interkinesis ?
(A) One of the stages of Interphase.
(B) Period between two consecutive cell-divisions.
(C) Period between two successive meiotic divisions.
(D) Period between nuclear division and cytoplasmic division.
95. Name the process of cell-division responsible for evolution in living organisms.
(A) Amitosis
(B) Mitosis
(C) Meiosis
(D) Mitosis and Meiosis both

96. Which elements are essential for healthy growth of certain plants ?
(A) Magnesium, Silicon, Sodium.
(B) Aluminium, Silicon, Chlorine.
(C) Aluminium, Nitrogen, Cobalt.
(D) Sodium, Calcium, Iron.

97. When Sunny touched the hot object, he withdrew his hand. Muscles are contracted in this process. Which element and protein are responsible for this process ?
(A) Mg and Myosin.
(B) Fe and Actin.
(C) Cu and Myosin.
(D) Ca and Actin.

98. Which are the factors responsible for density of water ?
(A) Cohesive force, Temperature.
(B) Insoluble salts, Temperature.
(C) Soluble salts, Temperature.
(D) Temperature, Soluble and insoluble salts.

99. In given chemical structure, the distance between O and H can be denoted by



(A) Micrometer
(B) Centimeter
(C) Picometer
(D) Millimeter

100. In which macro-molecule, water maintain three dimensional form ?
(A) All of the given three options
(B) Globulin
(C) DNA
(D) RNA