

**2018**

**Life science**

**Time – Three Hours Fifteen Minutes**

(First **fifteen** minutes for reading the question paper only)

**Full Marks – 90**

(For Regular and Sightless Regular Candidates)

**Full Marks – 100**

(For External and sightless External Candidates)

Special credits will be given for answers which are brief and to the point.

Marks will be deducted for spelling mistakes, untidiness and bad  
handwriting

Figures in the margin indicate full marks for each question

**DIRECTIONS**

For Regular candidates, the questions for Group 'A', 'B', 'C', 'D' will have to be answered.

**Special Instruction for Sightless Candidates**

In Group 'D' instead of Question No. 4.1, 4.1 (A) will also have to be answered in addition to Group 'A', 'B', 'C' and D.

Instructions regarding the number of questions to be attempted have been  
indicated at the beginning of each group.

**Group – A**

**(Answer to all questions is compulsory)**

**1. Write the answer in complete sentence by choosing the correct answer for each question with respective serial number : [1 x 15 = 15]**

1.1 Select which of the following statement is correct related to tropic movement –

- (a) It is controlled by the intensity of the stimulus
- (b) Overall change of place takes place by a plant or part of the plant
- (c) This movement is observed in the algae called Volvox.
- (d) It is an induced movement of curvature controlled by the direction of stimulus

1.2 Read the following sentences and identify the sentence which is not correct –

- (a) FSH, LH and Prolactin are different types of GTH

- (b) Adrenaline decreases cardiac output
- (c) Insulin facilitates the absorption of glucose into the cell through cell membrane
- (d) Progesterone helps in the formation of placenta in female body

1.3 Determine the number of Cranial nerves in human body –

- (a) 10 Pairs
- (b) 31 Pairs
- (c) 12 pairs
- (d) 21 pairs

1.4 Identify the correct feature of Amitosis cell division –

- (a) Occurs in germ mother cell of sexually reproducing organism
- (b) It is called indirect cell division
- (c) Chromosome and Spindle fibre are formed
- (d) Chromosome and Spindle fibre are not formed

1.5 Determine which of the following statement is correct regarding the significance of meiosis

- (a) It results in overall growth and development of body
- (b) It results in the growth of reproductive organs and embryo of the organism
- (c) It produces haploid gamete containing hereditary variations
- (d) It regenerates the organ in the body of some animals if it is lost

1.6 Select the correct pair and write it –

- (a) Multiple fission – Hydra
- (b) Fragmentation – Spirogyra
- (c) Regeneration – Fern
- (d) Budding – Planaria

1.7 Identify which of the following is a dominant trait –

- (a) Length of the stem – Dwarf
- (b) Shape of the seed – Wrinkled
- (c) Colour of the cotyledon – Yellow
- (d) Colour of the flower – White

1.8 Assess how many types of gametes are produced from the Pea plant having the genotype RRYy –

- (a) One type
- (b) Four types
- (c) Two types
- (d) Three types

1.9 Select which of the following two genotypes are responsible for the expression of the phenotype wrinkled yellow in Pea plant –

- (a) RRYY and rryy
- (b) RRYy and RrYy
- (c) RRyy and Rryy
- (d) rrYY and rrYy

1.10 Identify which of the following indicates inter-specific struggle –

- (a) Struggle among the members of guppy fish for feeding on mosquito larvae
- (b) Struggle between snakes and owls for capturing rats for eating
- (c) Struggle within a group of deer for feeding on grass at the same location
- (d) Struggle between tigers in a jungle for preying on deer

1.11 Determine the term related to the theory of Lamarck –

- (a) Struggle for existence
- (b) Origin of variation
- (c) Inheritance of acquired characters
- (d) Natural selection

1.12 Identify the animal that communicates information with other members of its own group through specific dancing pattern regarding the sources of food –

- (a) Chimpanzee
- (b) Cockroach
- (c) Peacock
- (d) Honeybee

1.13 Decide which of the following if remains for a long time in the environment, the probability of its biomagnification increases –

- (a) Newspaper
- (b) Faecal matters of animals
- (c) Rotten leaves

(d) Chlorinated insecticide

1.14 Gorumara, Corbett, Kulik, Nandadevi – choose the correct sequence from the following which is correct for the above forests in sequence –

(a) Biosphere Reserve, Sanctuary, National Park, National Park

(b) National Park, National Park, Biosphere Reserve, Sanctuary

(c) National Park, National Park, Sanctuary, Biosphere Reserve

(d) Sanctuary, Biosphere Reserve, National Park, Sanctuary

1.15 If the amount of pollen grains, fungal spores and dust particles increase suddenly in the air, decide which of the following problems may increase –

(a) Tuberculosis

(b) Asthma

(c) Malaria

(d) Dengue

 Group – B

**2. Answer 21 questions out of 26 questions given below as instructed : [1 x 21 = 21]**

**Fill In the blanks with proper words in the following sentences (any five) : [1 x 5 = 5]**

2.1 By the influence of \_\_\_\_\_ hormone the hairs on the skin get erected at emergency situation.

2.2 Chromosome is the condensed coiled structure of \_\_\_\_\_ molecule.

2.3 The sexual reproduction that occurs among two genotypically different organisms belonging to the same species, is called \_\_\_\_\_.

2.4 \_\_\_\_\_ was the aggregate of some large colloidal molecules during the early phase of origin of life.

2.5 \_\_\_\_\_ is derived from the root of Sarpagandha plant which is used as medicine for lowering high blood pressure.

2.6 The *ex situ* conservation by keeping sample seeds in liquid nitrogen at a temperature of  $-196^{\circ}\text{C}$  is called \_\_\_\_\_.

**Decide whether the following statements are true or false (any five) : [1 x 5 = 5]**

2.7 Dilute urine is profusely eliminated by a person affected with Diabetes Insipidus.

2.8 The Carpel of flowering plants collect pollen grains with the help of hairy and sticky style.

2.9 A pair of sex determining sex chromosomes are present in the ovum of human.

2.10 According to Darwin organisms reproduce at geometric ratio.

2.11 One-horned rhinoceros is conserved at Manas National Park of West Bengal.

2.12 Acetyl choline and adrenaline are neurotransmitters.

**Match the words in Column-A with those which are most appropriate in Column-B and re-write the correct pair mentioning the serial no. of both the columns (any five) : [1 x 5 = 5]**

Column A	Column B
2.13 Presbyopia	(a) BbRr
2.14 Cell Differentiation Phase of Growth	(b) Haldane
2.15 Genotype of Guinea-pig having black and coarse hair	(c) Near vision is defective
2.16 Hot Dilute Soup	(d) Change of climate and global warming
2.17 Destruction of forest and erosion of ecosystem	(e) Formation of spindle fibre during animal cell division
2.18 Centrosome	(f) Formation of tissue, organ and system
	(g) bbrr

**Answer in a single word or in a single sentence (any six) : [1 x 6 = 6]**

2.21 A pair of related terms is given below. On the basis of the relationship in the first pair write the suitable Word in the gap of second pair.

Grafting : Mango : : \_\_\_\_\_ : China Rose

2.22 What is the cause of expression of haemophilia disease only at homozygous condition ?

2.23 Write the genotypic ratio obtained at 2nd filial generation in the monohybrid experiment done by Mendel.

2.24 Which type of evolution is indicated by homologous organs ?

2.25 Among the following four terms one includes the other three. Find it out and write it : Pesticides used in Agriculture, Typhoid, Water Pollution, liquid wastes from factories

2.26 In which type of *in situ* conservation practice, the diversity, culture and lifestyle of human is preserved along with microorganisms, wild animals and wild plants ?

### Group – C

**3. Answer any 12 questions in 2-3 sentences out of 17 questions given below : [2 x 12 = 24]**

3.1 Illustrate with the help of a word diagram the nervous pathway of the way you will open the door by hearing the door bell.

3.2 State the locations of Meninges and CSF.

3.3 What influences gibberellin hormone exert on the seeds and internode of plants ? Explain.

3.4 Write the names of the different refractive medium of eyeball in proper sequence.

3.5 During the meiosis cell division, reduction in the number of chromosomes and exchange of segments between chromatids take place Analyse what are the significance of these two phenomena.

3.6 Distinguish between asexual and sexual reproduction on the basis of following features :

# Number of Parents

# Nature of offspring

