

Ph.D. Programme in Biosciences

Model Question Paper

RESEARCH APTITUDE ASSESSMENT TEST

Time : 2 Hours

Max. Marks : 75

I. Part A: Multiple Choice Questions

30 x 1 mark = 30 marks

Choose the correct Response viz., A, B, C, D or E for the Questions from 1 - 30 which carry ONE mark each. Please NOTE that an **incorrect response** will attract **negative marking**. (For Multiple Choice question with 5 options, $\frac{1}{4}$ th mark shall be deducted for an incorrect answer.)

1. Rough ER are responsible for synthesis of ()
 - (a) fats
 - (b) steroids
 - (c) proteins
 - (d) lipids
 - (e) carbohydrates

2. Which of the following is associated with food poisoning? ()
 - (a) *Salmonella typhi*
 - (b) *Clostridium botulinum*
 - (c) *Clostridium difficile*
 - (d) *Synchytrium endobiotum*
 - (e) *Dionaea muscipula*

3. Compositae is also known as ()
 - (a) Orchidaceae
 - (b) Asteraceae
 - (c) Poaceae
 - (d) Campanulatae
 - (e) Rosaceae

4. The golden age of reptiles is ()
(a) mesozoic era
(b) palaeozoic era
(c) cenozoic era
(d) metazoic era
(e) reptozoic era
5. Gonadotropins are synthesized by ()
(a) gonads
(b) hypothalamus
(c) anterior pituitary
(d) posterior pituitary
(e) liver
6. The germplasm theory was propounded by ()
(a) Lamarck
(b) Mendel
(c) Delbruck
(d) Morgan
(e) Weismann
7. Book lungs are respiratory organs in ()
(a) mollusca
(b) arachnida
(c) birds
(d) cnidaria
(e) mammalia
8. Codons responsible for chain termination are ()
(a) UAT, UTA, UGT
(b) UAG, UAT, AUG
(c) GUA, GAT, GTT
(d) UAG, UGA, UAA
(e) AUG, TAG, UGT
9. Incomplete dominance is shown by the genus ()
(a) *Pisum*
(b) *Antirrhinum*
(c) *Neurospora*
(d) *Mangifera*
(e) *Aristolochia*

10. An octamer of four histones complexed with genetic material is known as ()
(a) centrosome
(b) chromosome
(c) histosome
(d) nucleosome
(e) endosome
11. Which of the following is common to ATP, NAD and FMN? ()
(a) Zn
(b) Mg
(c) Mn
(d) Fe
(e) P
12. Chromosome number is reduced to half during ()
(a) meiosis
(b) parthenogenesis
(c) mitosis
(d) binary fission
(e) budding
13. What type of inflorescence is found in *Ficus*? ()
(a) Verticillaster
(b) Cyathium
(c) Hypanthodium
(d) Umbel
(e) Raceme
14. Antigens and antibodies are ()
(a) proteins
(b) esters
(c) polysaccharides
(d) immune cells
(e) sphingolipids
15. The number of hydrogen bonds between adenine and thymine in DNA is/are ()
(a) one
(b) two
(c) three
(d) four
(e) eight

Part - B

II. Answer any 9 of the following in about 150 words each in the sheets provided with the question paper:

(9 x 5 = 45 marks)

1. Is the greenhouse effect beneficial or harmful for life on earth? Comment.
2. Write short notes on any two of the following blotting techniques - Western, Northern, Southern Blotting.
3. What do you understand by the term epigenetics? Write about its relevance in development and inheritance.
4. Briefly describe the principle which formed the basis for the award of the Nobel Prize in Physiology or Medicine in the year 2016.
5. Enlist the steps involved in screening and selection of industrially important microbes.
6. – 13.

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