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B.Sc. – II (Biotechnology) (Sem. – III) (CGPA) (Old) Examination, 2018
INHERITANCE BIOLOGY

Day and Date : Tuesday, 24-4-2018
Time : 2.30 p.m. to 5.00 p.m.

Max. Marks : 70

- Instructions:** 1) **All** questions carry **equal** marks.
2) Figures to the **right** indicate **full** marks.
3) **Draw** neat and **labeled** diagrams.

1. Rewrite the following sentences by using correct alternative :

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- 1) X chromosome of father is transferred to _____
 - a) Son
 - b) Grandson
 - c) Daughter
 - d) Both son and daughter
- 2) Roans are produced in cattle's because both alleles _____ expressed.
 - a) Partially
 - b) Alternately
 - c) Equally
 - d) Simultaneously
- 3) Plasmagenes are located on the _____ DNA.
 - a) Chromosomal
 - b) Mitochondrial
 - c) Nuclear
 - d) X and Y chromosomal
- 4) The method of construction of maps of different chromosomes is called _____.
 - a) Genetic mapping
 - b) Linkage mapping
 - c) Cross over map
 - d) All of these
- 5) Experimental material selected by Mendel is wise due to _____.
 - a) Self-pollinating
 - b) Annual plant
 - c) Produce viable seeds
 - d) All of these
- 6) Extra-nuclear inheritance by chloroplast was first studied in _____ by Carl Correns.
 - a) BGA
 - b) Maize
 - c) Four 'O' clock plant
 - d) Cyanobacteria
- 7) In _____ disease patient can't distinguish red and green colour.
 - a) Hemophilia
 - b) Color blindness
 - c) Hypertrichosis
 - d) Night blindness

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8) In four 'O' clock plants, formation of green, pale or white and variegated leaves on same plant in a cross between _____

- a) Variegated × Variegated
- b) Green × Variegated
- c) Pale or White × Variegated
- d) Green × Green

9) Holandric genes are also called as _____

- a) Autosomal
- b) X-linked
- c) Y-linked genes
- d) None of these

10) In inhibitory gene action, the ratio is _____

- a) 9 : 3 : 3 : 1
- b) 9 : 7
- c) 9 : 3 : 4
- d) 13 : 3

11) Monohybrid phenotypic ratio in the F₂ generation is _____

- a) 9 : 3 : 3 : 1
- b) 1 : 1 : 1 : 1
- c) 9 : 3 : 4
- d) 3 : 1

12) Transforming bacteria produce _____ factor for internalization of foreign DNA.

- a) Complement
- b) Compatibility
- c) Component
- d) Competence

13) Virulent phages are responsible for _____ type of life cycle in the host cell.

- a) Lysogenic
- b) Lysolytic
- c) Lysogenic and Lysolytic
- d) None of these

14) Sex pilus act as _____ tube during transfer of 'F' plasmids in bacterial cells.

- a) Transduction
- b) Conjugation
- c) Transformation
- d) Transcription

2. Answer the following (any 7) :

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- i) What is back cross ?
- ii) What is hypostatic gene ?
- iii) What is complete linkage ?
- iv) What is lysogeny ?

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- v) Significance of crossing over.
 - vi) What is cytoplasmic inheritance ?
 - vii) What is myopia ?
 - viii) What is Haplodiploidy ?
 - ix) What are plasmids ?
3. A) Answer the following (**any 2**) : **10**
- i) Prove law of independent assortment with suitable example.
 - ii) Describe process of transformation with neat labeled diagram.
 - iii) Describe process of mapping by tetrad analysis .
- B) Describe multiple alleles with suitable example. **4**
4. Answer **any two** of the following : **14**
- i) Describe process of crossing over with neat labeled diagram.
 - ii) Explain extranuclear inheritance with any two suitable examples.
 - iii) Describe fiber folded model in bacteria.
5. Answer **any two** of the following : **14**
- i) Describe modifications of Mendelian ratios with any two suitable examples.
 - ii) Describe X and Y linked inheritance with any one suitable example.
 - iii) Explain process of specialized transduction in bacteria.
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