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GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Third Semester – Regular) Examinations, December – 2020

BPCBT 3020 – Basics of Biology

(Biotechnology)

Time: 2hrs

Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) (1 x 10 =10 Marks)

Q.1. Answer **ALL** questions

- a. Pigments that contain bodies are bound by a membrane called as
- | | |
|-----------------|----------------------|
| (i) Chloroplast | (ii) Plasma membrane |
| (iii) Plastids | (iii) Mitochondria |
- b. According to cell theory,
- | | |
|---|----------------------------|
| (i) Cells are fundamental units of all living organisms | (ii) All cells are living |
| (iii) Cells cannot regenerate | (iv) All cells have nuclei |
- c. is the largest cell organelle
- | | |
|-----------------------|------------------|
| (i) Mitochondria | (ii) Chloroplast |
| (iii) Golgi apparatus | (iv) Nucleus |
- d. Which is not included in chromosomal aberration type?
- | | |
|-------------------|---------------------------|
| (i) Translocation | (ii) Chromosomal breakage |
| (iii) Mutations | (iv) Duplication |
- e. The first correlation between a chromosomal deletion and human disorder was developed in the year
- | | |
|--------------------------|---------------------------|
| (i) 1993 by Robert Hooke | (ii) 1973 by Robert Hooke |
| (iii) 1962 by Jerome | (iv) 1963 by Jerome |
- f. The continuous chain formed by the cell membrane is
- | | |
|-------------------|----------------|
| (i) Integrins | (ii) Annulus |
| (iii) Peroxisomes | (iv) Lysosomes |
- g. The molecule that is responsible for activating the formation of a transport vesicle is
- | | |
|---------------|--------------------|
| (i) G-Protein | (ii) Glycoprotein |
| (iii) ER | (iv) Golgi complex |
- h. The protein kinases do not add phosphate groups to this protein residue.
- | | |
|------------------|----------------|
| (i) Tyrosine | (ii) Cytosine |
| (iii) Asparatine | (iv) Threonine |
- i. When all organisms in a population are triploid, then Hardy-weinberg is applicable to
- | | |
|-------------------|------------------|
| (i) $(p+q)^3$ | (ii) $(p+q+r)^2$ |
| (iii) $(P+q+r)^3$ | (iv) $(p+q+r)^2$ |

j. Two mutant strains of *Drosophila* that are different gives a black color body. When these mutants are crossed all the progeny likely to have wild type color which shows that the mutation is.

- | | |
|--------------------------|-------------------|
| (i) Incomplete dominance | (ii) Non- Allelic |
| (iii) Co-dominant | (iv) Epistatic |

PART – B: (Short Answer Questions)

(2 x 5=10 Marks)

Q.2. Answer ALL questions

- Differentiate Prokaryotic cell from Eukaryotic cell.
- Mention the functions of Mitochondria.
- State the theory of genetic equilibrium with a human example.
- What are incomplete dominance?
- Which protons pump is responsible for the acidification of the stomach contents?

PART – C: (Long Answer Questions)

(6 x 5 = 30 Marks)

Answer ANY FIVE questions

Marks

- | | |
|--|-----|
| 3. Explain the structure of a bacterial cell wall. | (6) |
| 4. Write about multiple allele with examples | (6) |
| 5. Explain the Mechanism involved in Active transport. | (6) |
| 6. Discuss in detail about the various stages of Cell cycle. | (6) |
| 7. Elaborate Linkage and crossing over. | (6) |
| 8. Explain monohybrid inheritance with suitable cross as example. | (6) |
| 9. Describe the Hardy and Weinberg equilibrium model and its significance. | (6) |
| 10. Elucidate on any two methods of plant breeding. | (6) |

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