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SEAT No. :

PE-3436

[Total No. of Pages : 2

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S. Y. B.Sc.
BIOTECHNOLGY
IKS-201-T : Biotechnology in Ancient India
(Rev. 2020) (Semester - III)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Draw neat and labelled diagram wherever necessary.*

Q1) Answer Any Five of the following : **[5]**

- a) Write medicinal uses of tulsi.
- b) Enlist names of probiotic organism.
- c) Explain the mechanism of water purification by alum treatment.
- d) What is mean by traditional farming?
- e) Enlist animal breeding technique.
- f) Enlist religiously important plants.

Q2) a) Explain the origins and development of biotechnology practices in ancient India. **[6]**

OR

Explain the making process of Bhasma and Churna as Ayurvedic dosage form.

- b) Explain the methods of extraction of plants bioactive compounds. **[4]**

OR

Give an account on chimeric grafting technique.

P.T.O.

- Q3) a)** What is fermented food? Explain preparation of fermented food made from cereals. **[6]**

OR

Describe the Indus Civilization and it's relevance of heritage in Agriculture.

- b) Explain the traditional food preservation method with respect to drying and pickling. **[4]**

OR

Explain the concept and significance of modern herbal medicine with example.

- Q4)** Write short notes on any four of the following : **[10]**

- a) Indigenous plants
- b) Traditional Alcoholic Beverages
- c) Fermented dairy products
- d) Kanji
- e) Medicinal uses of Aloe vera
- f) Decoction - extraction method.



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SEAT No. :

PE-3437

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S. Y. B.Sc.

BIOTECHNOLOGY

MN-201-BT-T : Applied Biotechnology

(Rev. 2024) (Semester - III)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Draw neat labelled diagram wherever necessary.*

Q1) Answer Any Five of the following :

[5]

- a) Name any two sources for first generation of Biofuel.
- b) Define xenobiotics.
- c) Define macronutrients with example.
- d) What are bioproducts derived from microalgae?
- e) What is nanosphere?
- f) What is system biology?

Q2) a) What are biofabricated nanoparticle and explain their characterization method. **[6]**

OR

Explain in detail the different generation of biofuels, their sources and advantages.

b) Differentiate between food laws, standards and certification. **[4]**

OR

What are marine bioresources? Give its application.

P.T.O.

- Q3) a)** Enlist different method of genetic manipulation and explain method used for production of BT cotton. **[6]**

OR

With suitable example explain concept of drug discovery and give its significance.

- b) Differentiate between classical and modern agricultural biotechnology. **[4]**

OR

Explain how synthetic biology is used in drug production and vaccine design.

- Q4) Write short notes on any four of the following :** **[10]**

- a) Neutraceuticals.
- b) Food waste management.
- c) Application of nanomaterial in agriculture.
- d) Gene therapy.
- e) Green technology
- f) Application of biotechnology in disease diagnosis.



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SEAT No. :

PE-3438

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S. Y. B.Sc.

BIOTECHNOLOGY

BT-201-T : Cell Biology and Genetics

(NEP 2020) (Rev.2024) (Semester - III)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Draw neat labelled diagram wherever necessary.*

Q1) Answer Any Five of the following :

[5]

- a) Define allele.
- b) Name any two ionizing radiations which induce mutations.
- c) Define Interference.
- d) Give any two functions of Golgi complex.
- e) Define Apoptosis.
- f) Enlist components of prokaryotic cell.

Q2) a) Why did mendel choose pea plant for its genetic studies? Explain monohybrid cross with suitable example. **[6]**

OR

What is crossing over? Explain experiment that show cytological proof for it. **[6]**

b) Explain in detail two point cross. **[4]**

OR

Explain law of codominance with suitable example. **[4]**

P.T.O.

Q3) a) What is cell cycle? Give different phases of cell cycle in detail. **[6]**

OR

Describe fluid mosaic model of plasma membrane and give its biological significance. **[6]**

b) What are checkpoints? Explain any two checkpoints of cell cycle. **[4]**

OR

Describe in detail ultrastructure of chloroplast along with its function. **[4]**

Q4) Write a short note on any four of the following : **[10]**

- a) Sick cell Anaemia
- b) Symbols used in pedigree analysis
- c) Dihybrid cross
- d) Organization of animal cell structure.
- e) Stages of meiosis - I
- f) Ageing



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SEAT No. :

PE-3439

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S.Y. B.Sc.

BIOTECHNOLOGY

BT-202-T : Molecular Biology and Metabolism

(Rev. 2024) (NEP 2020) (Semester - III)

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Draw neat labelled diagram wherever necessary.

Q1) Answer any five of the following :

[5]

- a) Define glycogenesis.
- b) Write functions of regulatory sequences.
- c) Define melting Temperature.
- d) What is full form of ATP?
- e) What are secondary metabolites?
- f) Write significance of genetic code.

Q2) a) Attempt any one of the following :

[6]

- i) Describe the sequence of reactions in glycolysis, with all enzymes and energy output.
- ii) Discuss B-Oxidation of fatty acids.

b) Attempt any one of the following :

[4]

- i) Explain regulation of Top operon.
- ii) Write explanatory note on B-DNA with suitable diagram.

P.T.O.

Q3) a) Solve any one of the following : **[6]**

- i) Explain the key features of DNA replication in prokaryotes.
- ii) Describe protein synthesis in prokaryotes.

b) Solve any one of the following : **[4]**

- i) Explain mechanism of ATP synthesis in mitochondria.
- ii) Discuss dark reactions of photosynthesis and role of RUBISCO.

Q4) Write short note on any four of the following : **[10]**

- a) Hershey and chase experiment.
- b) CAM pathway.
- c) Mutations.
- d) Role of secondary metabolism.
- e) Semiconservative DNA replication.
- f) HMG-COA reductase in lipid metabolism.

