Total No. of Questions : 5]

SEAT No. :

P1223

[Total No. of Pages : 2

[4919] - 11
S.Y. B.Sc.
BIOTECHNOLOGY
Bb - 211 - Genetics and Immunology
(2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

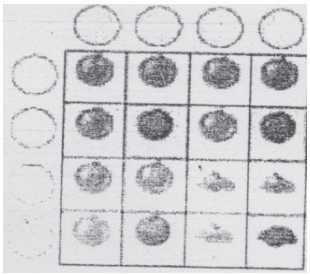
1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Use of color pencils restricted to diagrams.***

Q1) Attempt the following in two - three sentences: **[10 × 2 = 20]**

a) Define Hapten and antigenic determinant.

b) Differentiate between Ouchterlony and immunoelectrophoresis techniques used in antigen antibody reactions.

c) Indicate the phenotypic ratios that result in F2 from F1 cross (dihybrid cross).



d) Distinguish between trisomy and triploidy.

e) Define linkage. How does it interfere with independent assortment?

f) Crossovers are normally reciprocal. Justify.

g) Draw a Punnett square showing P1:YYRR &yyrr.

h) What are pleiotropic genes?

i) How attenuated vaccines differ from Killed vaccines? Give one example of each.

j) Enlist the names of techniques used to transfer gene in oocyte.

P.T.O.

Q2) Draw neat and labeled diagrams of any three of the following: **[3 × 5 = 15]**

a) IgM.

b) Regulation of Lac Operon.

c) Flow chart of western blot.

d) Conjugation.

e) CD4 and CD8 cells with their MHC protein.

Q3) Write self explanatory notes of any three of the following: **[3 × 5 = 15]**

a) Supressor Mutation.

b) Transposons.

c) Ti plasmids.

d) DNA vaccine.

e) Phagocytosis and Opsonisation.

Q4) a) What characteristics are exhibited by a cytoplasmically inherited trait? Give two examples. **[8]**

b) How is the principle of independent assortment related to meiosis? Explain with example. **[7]**

Q5) Explain classical and alternate pathway of complement activation. **[15]**

OR

Compare and contrast the process of generalized and specialized phage mediated gene transfer in bacteria.

Total No. of Questions : 5]

SEAT No. :

P1224

[Total No. of Pages : 3

[4919] - 12
S.Y.B.Sc.
BIOTECHNOLOGY
Bb - 212 : Cell Biology
(Revised 2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 80*

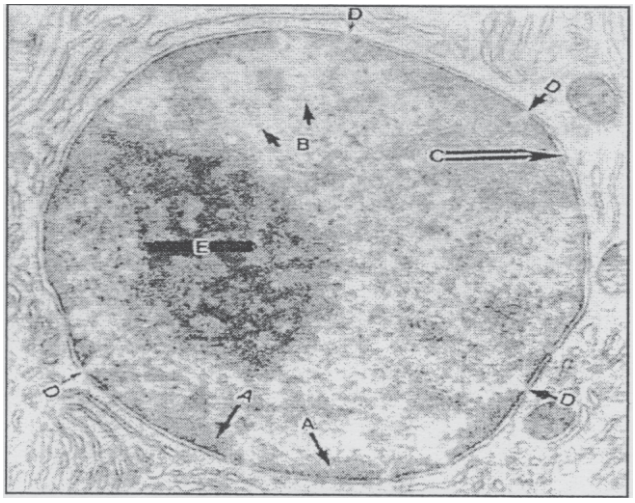
Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Use of color pencils restricted to diagrams.***

Q1) Attempt the following in two - three sentences: **[10 × 2 = 20]**

a) What are the plant tissues that constitute the functional structures of the leaf veins?

b) Identify the structures labeled A, B, C, D and E in the accompanying electron micrograph:



c) What is the difference between smooth and rough endoplasmic reticulum?

d) What are plant cell vacuoles? What are their functions? What is the covering membrane of the vacuoles called?

P.T.O.

e) Decreased recombination is associated with the production of aneuploid sperm in humans. Meiotic crossover occurs in which of the following stages?

i) Leptotene

ii) Zygotene

iii) Pachytene

iv) Diplotene

v) Diakinesis

f) Write the significance of microtubule treadmilling.

Q2) Draw neat and labeled diagrams of any three of the following: **[3 × 5 = 15]**

a) Phospholipase A activating DAG and IP_3.

b) Chloroplast.

c) Mitochondrial Electron transport chain.

d) Na^+/K^+ ATPase.

e) Desmosomes.

Q3) Write self explanatory notes of any three of the following: **[3 × 5 = 15]**

a) cAMP and protein kinases.

b) Connexin forms Gap junctions.

c) Osmotic pressure causes water movement across membrane.

d) Ciliated Epithelium.

e) Modified parenchyma.

Q4) a) Explain in detail that *S.cerevisiae* Cdc28 is functionally equivalent to *S.pomb*e Cdc2. **[8]**

b) Justify Apoptosis or induced cell suicide, is one mechanism of protection against cancer. **[7]**

Q5) Describe that the Microtubule assembly and disassembly occurs by preferential addition and loss of $\alpha\beta$ dimers at the (+) end. **[15]**

OR

Write an essay on asymmetry of biological membranes.

Total No. of Questions : 5]

SEAT No. :

P1225

[Total No. of Pages : 2

[4919]-13
S. Y. B. Sc.
BIOTECHNOLOGY
Bb - 213 : Molecular Biology
(Semester - I) (Revised 2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

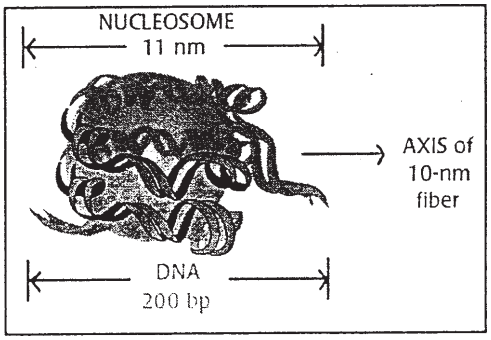
Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to right indicate full marks.***
3) ***Use of color pencils restricted to diagrams.***

Q1) Attempt the following in two - three sentences. **[10 × 2 = 20]**

a) Name the three sites on ribosomes that allow the binding of t-RNA.

b) If one base pair of DNA is 0.3nm and nucleosome has a diameter of 11nm. How much fold the DNA has been packed?



c) What will be the packing ratio if 1200 base pairs are wound around 6 nucleosomes forming solenoid structure?

d) Complete the following table by filling in the blanks:

Translational factors Prokaryote	Eukaryote equivalent	Function
IF 1	----------	---------
IF 2	----------	---------
IF 3	----------	---------
EFT_U	----------	---------
EFT_S	----------	---------
EFG	----------	---------
TF 1, 2 & 3	----------	---------

P.T.O.

Q2) Draw neat and labeled diagrams of any three of the following: **[3 × 5 = 15]**

a) RNA polymerase of *E.coli*.

b) Transcription Initiation complex of RNA pol III.

c) Rho independent termination.

d) Attenuation.

e) Antitermination.

Q3) Write self explanatory notes of any three of the following: **[3 × 5 = 15]**

a) Splicing.

b) Polyadenylation.

c) Genetic Code.

d) Protein glycosylation.

e) Capping of hn RNA.

Q4) a) Write in detail the base excision and mismatched repair system of *B.subtilis*. **[8]**

b) Describe in detail the discovery of transforming principal. **[7]**

Q5) Explain in details the mutations induced by Base analogs, alkylating agents and acridine dyes. **[15]**

OR

Write an essay on the DNA replication of prokaryotic cells; add a note on Meselson Stahl experiment.

Total No. of Questions : 5]

SEAT No. :

P1226

[Total No. of Pages : 2

[4919]-21
S. Y. B. Sc.
BIOTECHNOLOGY
Bb - 221 : Environmental Biology & Biotechnology
(2008 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat and labelled diagrams wherever necessary.***

Q1) Answer the following in brief: **[10 × 2 = 20]**

a) Define ecology.

b) What is cybernetics?

c) Significance of BOD.

d) Define Biomagnification.

e) Explain Troposphere.

f) Diagramatically show horiyons of soil.

g) Explain trophic level of an ecosystem.

h) Uimax community.

i) Photochemical smog.

j) Acid rain.

Q2) Attempt any three of the following: **[3 × 5 = 15]**

a) Write the role of Biotechnology in protection of environment.

b) With suitable diagram describe carbon cycle.

c) Explain Energy flow in an ecosystem.

d) Give an account of sources of water pollution with examples.

P.T.O.

Q3) Write short notes on any three: **[3 × 5 = 15]**

a) Biotransformation of plastics.

b) Biosensors.

c) Hazyardous wastes.

d) Stratification of an ecosystem.

Q4) a) What is food chain? Describe types of food chain. **[8]**

OR

Give in detail the scope of ecological study with suitable examples.

b) What are wastes? Describe methods for disposal of municipal wastes. **[7]**

Q5) a) What is phytoremediation? Add note on its advantages & limitations. **[8]**

b) With suitable example explain environmental clean up. Case studies. **[7]**

OR

What are the main sources of land pollution? Write a short account of harmful effects of metal pollutants on human health.

Total No. of Questions : 6]

SEAT No. :

P1227

[Total No. of Pages : 2

[4919]-22
S. Y. B.Sc.
BIOTECHNOLOGY
Bb - 222 : Plant and Animal Tissue Culture
(2008 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer each section on a separate answerbook.***
2) ***All questions are compulsory.***
3) ***Draw neat labeled diagrams wherever necessary.***
4) ***Figures to right indicate full marks.***
5) ***Use of colour pencils restricted to diagram.***

SECTION - I

(Plant Tissue Culture)

Q1) Answer the following questions: **[10]**

a) What are macro-nutrients? Enlist macro-nutrients present in MS medium.

b) Define - totipotency.

c) Distinguish between hybrids and cybrids.

d) Write any two applications of leaf culture.

e) What are artificial seeds?

Q2) Attempt any thee of the following: **[15]**

a) What is biotransformation? Write its applications.

b) Write note on Plant growth regulators.

c) Define protoplast. Write inbrief different methods used for isolation of protoplast.

d) Discuss different stages of micropropagation.

P.T.O.

Q3) a) Elaborate various types of suspension cultures. Add note on the various methods used for measuring their growth. **[8]**

b) Enlist and explain different methods of DNA transformation inplants. **[7]**

OR

b) What are somaclonal variations? Give an account of methods used for selection of somaclonal variants.

SECTION - II

(Animal Tissue Culture)

Q4) Answer in brief: **[5 × 2 = 10]**

a) State the importance of 'Good Laboratory practices'.

b) How to detect mycoplasm contamination in animal cell culture?

c) Define: Organ Culture.

d) Give any four applications of ATC.

e) What is serum free medium?

Q5) Answer any four: **[4 × 5 = 20]**

a) Explain any one method used for characterisation of cell lines.

b) How will you initiate primary cell culture?

c) Write a note on cryopreservation.

d) What are the different methods of organ culture?

e) What are cell repositories? Explain their function.

f) What are cell lines? Explain finite life span cell line with suitable example.

Q6) Answer any one: **[1 × 10 = 10]**

Enlist the names of enzymes used in tissue disaggregation. Explain enzymatic disaggregation of tissue in detail.

OR

What is serum? Give importance of serum in ATC medium.

Total No. of Questions : 5]

SEAT No. :

P1228

[Total No. of Pages : 4

[4919]-23
S.Y. B.Sc.
BIOTECHNOLOGY
Bb - 223 : English (Old Course)
(2008 Pattern) (Semester-II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) a) Read the passage carefully and answer the questions given.

Small landholders that cannot afford the high investment demanded by the new technology send their women to work as labourers on others' farms and use their income as capital for investing in mechanisation. The increased earnings, generated in technology intensive agricultural belts, have also increased women's traditional work burdens: tasks like fuel collection and cooking have become more onerous because women are expected to feed the hired labour on their farms, apart from their own family members. Similarly, since mechanisation has pushed women into the most difficult, physically exhausting activities, they complained of having to work harder and for longer hours than before.

Social problems of women have also been aggravated in such areas, and this is one of the indirect consequences of technology on women's situation. Studies have shown that the new affluence in Green Revolution belts has not necessarily led to greater expenditure on basic needs- food and shelter, but on things like liquor, drugs and gambling. The latter have increased the incidence of wife beating, rape, molestation and other forms of violence against women.

Questions:

i) For what purpose do the small landholders use income of their women? **[2]**

ii) Why do the women complain of having to work harder and longer? **[2]**

P.T.O.

iii) What are the social problems in Green Revolution belts aggravated by technology? **[2]**

iv) What is the cause of increase in traditional work burden for women? **[2]**

b) Expand Any One of the following ideas: **[8]**

i) Where there is will there is a way.

ii) Empty vessels make much noise.

Q2) a) Complete the table using noun, verb and adjective forms of the words given. **[6]**

Noun	Verb	Adjective
	construct	
		civil
		believable
demonstration		
	modify	
		beautiful

b) Provide a word for the following groups of words (Any Four): **[4]**

i) A place of higher education.

ii) A radio or a television programme giving facts about something.

iii) Impossible or very difficult to believe.

iv) A person who doesn't believe in God.

v) To take out air out of lungs as you breathe.

c) Use correct forms of verbs and complete the sentences (Any Four): **[4]**

i) They (have + be) travelling for two days.

ii) Satish (close) his father's old account from the bank.

iii) My brother (work) in a multinational company as a Microbiologist.

iv) Sagar was (watch) the cricket match whereas I was reading something.

v) Last week, we (visit) an industrial exhibition.

d) Use articles *a*, *an*, *the* wherever necessary. **[2]**

My father is _____ businessman. He wakes up early in _____ morning and opens his shop. One day _____ man came to the shop and told about _____ old account that he had and paid the pending bill.

Q3) a) Draw a bar chart on the basis of the following information. **[8]**

Number of PhD's awarded by the Open University.

The highest number f PhD's awarded in Science (85) was in year 1993-94 and the lowest number was (44) in 1996-97. While in 1992-93, 1995-96 and 1994-95 the number was 52, 55 and 58 respectively.

In Arts, as compared to Science a very small number of persons were awarded PhD's. In 1992-93 just 9 PhD's were awarded. In 1993-94, the number was 24 and in 1994-95, it was 15 while in 1995-96 and 1996-97 it was 10 and 17 respectively.

As far as Commerce is concerned, the PhD's awarded in 1996-97 were only 10, which was less by 3 in 1995-96. In 1994-95 the number was 20 while in 1992-93 it was a little less, i.e. 18. In 1993-94 the degrees awarded were 13.

b) Explain the procedure for Vital staining to determine live cells in about 12 to 16 sentences. **[8]**

Q4) a) Write a precis of the following paragraph to its one third length. Suggest a suitable title. Provide a rough draft also. **[8]**

books serve several purposes for us. They are the gateway to education and knowledge. Sitting comfortably in our easy chair we can travel mentally through the farthest lands and come face to face with the most remote people. If we desire, we can be transported into the fantasy world of the

writer's creation and we can observe how the characters in drama or fiction live lives and solve their problems or succumb to the disasters. If we can appreciate poetry we can delve into the philosophical thoughts of the poets and draw some inspiration from their works. We can turn to books on religion or science, biology or astronomy; we can read the lives of great men and try to picture ourselves caught in the similar circumstances in which all great men must find themselves. From books we can learn something about how to solve our problems. No doubt, books cannot provide a man with a job unless he starts writing them, they cannot loan one any money and they cannot mend a broken article unless one reads a book on the repair of that article. But books can do more for us. They can provide a man with the particular philosophy of life, which appeals to him, and, thus, they can set him along the roads to happy living and fulfilment in his chosen profession.

b) Edit the folllowing dialogue making corrections in spelling and punctuation. **[8]**

customer what are you doing ive been waiting for half an hour now

Waiter im sory sir ill serv you tea in a few minites

customer but i cant wait any more i have to go to the stetion

waiter yes sir here it is thank you sir for coming

customer here is the bil

OR

c) Write a report of various activities conducted in your college on the eve of Annual Social Function. **[8]**

Q5) a) You are the class representative and your class is planning to visit a consumable products producing factory. Write a letter to the Director of the company seeking permission to visit the factory. **[8]**

b) Form new words with the following prefixes. **[8]**

Prefixes: in- ; under- ; anti- ; a-

Suffixes: -ble; -ing; -ify; -hood

●●●●●

Total No. of Questions : 5]

SEAT No. :

P1229

[Total No. of Pages : 2

[4919]-24
S. Y. B. Sc.
BIOTECHNOLOGY
Bb - 224 : Metabolic Pathways
(2008 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw neat labelled diagrams wherever necessary.***

Q1) Answer the following in 2-3 sentences: **[10 × 2 = 20]**

a) Define specific Activity.

b) What are Ketogenic amino acids?

c) Define oxidation - Reduction reactions.

d) What are inhibitors of electron transport chain?

e) Enlist the coenzyme used in carboxylation reaction with an example.

f) What is Phenylketonuria?

g) What is substrate level phosphorylation?

h) Enlist essential fatty acid.

i) Define Glycogenesis.

j) What are allosteric enzymes?

Q2) Answer the following (Any three): **[3 × 5 = 15]**

a) TCA cycle is Amphibolic in nature. Explain.

b) What is difference between CPS-I & CPS-II.

c) What are ketone bodies. How they are produced in cell.

d) Explain transani nation reaction with an example.

P.T.O.

Q3) Write short notes on the following (Any three): **[3 × 5 = 15]**

a) Photophosphorylation.

b) Line - Weaver Burk Plot.

c) Fatty acid synthese complex.

d) Glyoxylate pathway.

Q4) a) How Anapleurotic reactions are used to fill in missing intermediates. **[8]**

b) What is enzyme inhibition? How it is used in regulation of various pathways. **[7]**

OR

a) Explain TCA cycle in detail. **[8]**

b) Describe in detail pyrimidine biosynthesis. **[7]**

Q5) a) Describe arrangement of complexes in electron transport chain & mark sites of ATP formation. **[8]**

b) Derive Michaelis Menten equation and give its significance. **[7]**

OR

a) Give the role of nitrogenase complex in nitrogen fixation. **[8]**

b) Explain β-oxidation of fatty acids with even number of carbon. **[7]**

Total No. of Questions : 7]

SEAT No :

P1230

[Total No. of Pages : 2

[4919] - 31
T.Y. B.Sc.
BIOTECHNOLOGY
Bb - 331 : Microbial Biotechnology
(Semester - III) (2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Question No. 1 & 7 are compulsory.***
2) ***Attempt any three of the remaining questions.***
3) ***Draw neat labelled diagrams wherever necessary.***
4) ***Figures to the right indicate full marks.***

Q1) Answer the following in 2-4 lines: **[20]**

a) Give the characteristic features of log phase.

b) Illustrate Fed Batch culture.

c) What is stormy fermentation?

d) Enlist any 2 protozoal diseases with causative agents.

e) State the significance of pentose phosphate pathway.

f) Enlist the structural genes and products of lac operon.

g) Give the significance of permeability mutants.

h) State the principle of chlorination in wastewater treatment.

i) Give 2 applications of GMO.s in agriculture.

j) Define scp. Give its significance.

Q2) a) Discuss ED pathway. Give its significance. **[8]**

b) Enlist the different methods of cell quantification. Elaborate on any one. **[7]**

Q3) a) Explain the regulation of tryptophan operon with diagram. **[8]**

b) Explain the screening of auxotrophic mutants in a strain improvement programme. **[7]**

P.T.O.

Q4) a) Explain generalised transduction with suitable example. **[8]**

b) Explain the symptoms, pathogenesis and treatment in M. tuberculosis infection. **[7]**

Q5) a) Explain the mode of action and applications of β lactam antibiotics. **[8]**

b) Describe the intrinsic and extrinsic factors affecting food spoilage. **[7]**

Q6) a) Give an overview of wastewater treatment process. Elaborate on Activated sludge treatment. **[8]**

b) What are GMo.s: Discuss the advantages and disadvantages of using GMo.s. **[7]**

Q7) Write short notes on: **[15]**

a) Monod equation.

b) Normal flora of human body.

c) Canning.

Total No. of Questions : 8]

SEAT No. :

P1231

[Total No. of Pages : 2

[4919]-32
T. Y. B. Sc.
BIOTECHNOLOGY
Bb - 332 : Animal and Plant Development
(2008 Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answer to each section should be written in separate answer book.***
2) ***Question No. 1 from each section is compulsory. From remaining questions attempt any two from each section.***

SECTION - I

(Animal Development)

Q1) Explain the terms with respect to animal development: **[10]**

a) Progenitor Cells.

b) Hyperactivation.

c) Determination.

d) Blastula.

e) Antibody diversity.

Q2) a) Describe the different types of morphogenetic movement during gastrulation. **[7]**

b) Describe the process of oogenesis. **[8]**

Q3) a) Describe the role of maternal effect genes in pattern formation. **[7]**

b) What is cleavage? Describe different cleavage patterns in animal. **[8]**

P.T.O.

Q4) Write short notes on: **[15]**

a) Acrosomal reaction.

b) Apoptosis.

c) Slow block to prevent polyspermy.

SECTION - II

(Plant Development)

Q5) Explain the terms with respect to plant development: **[10]**

a) Plasticity of development in plants.

b) Periclinal chimeras.

c) Redifferentiation.

d) Microsporogenesis.

e) Quiscent center.

Q6) a) What are plant hormones? Describe the role of auxins in detail. **[8]**

b) Describe in detail the ABC model of floral patterning. **[7]**

Q7) a) Describe the embryonic development in dicotyledons with suitable diagrams. **[8]**

b) Arabidopsis has been used as a model system to study development in plants. Justify. **[7]**

Q8) Write short notes on: **[15]**

a) Role of gibberllic acid in plants.

b) Organogenesis.

c) Root apical meristem.

☛ ☛ ☛

Total No. of Questions : 7]

SEAT No. :

P1232

[Total No. of Pages : 2

[4919]-33
T. Y. B. Sc.
BIOTECHNOLOGY
Bb - 333 : Biodiversity and Systematics
(2008 Pattern) (Semester - III)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Question no. 1 is compulsory.***
2) ***Out of the remaining questions attempt any four.***
3) ***Figures to the right indicate full marks.***

Q1) Answer the following in 2-4 lines. **[10 × 2 = 20]**

a) Define α (alpha) diversity.

b) Define with example 'Ecological niche'.

c) What is a 'Biosphere reserve'?

d) What is stratification?

e) Define the term 'Biosystematics'.

f) What is carrying capacity?

g) Explain with example commensalism.

h) Define: Clade.

i) Explain the acronym IUCN.

j) Define Biodiversity hot spots.

Q2) a) What is 'Biome'? Enlist types of Biomes and elaborate on characteristics of tropical forests. **[8]**

b) What is meant by 'Age distribution' of a population? How does this distribution govern the population size? **[7]**

P.T.O.

Q3) a) Elaborate on keys used for five kingdom classification with examples. **[8]**

b) Give an account of forest conservation act, 1980. **[7]**

Q4) a) Give an account of molecular taxonomy and state its importance. **[8]**

b) Justify : Resource partitioning can be a means of avoiding competition. **[7]**

Q5) a) Explain Ex-situ conservation. State its importance, advantages and limitations. **[8]**

b) Describe Bioprospecting. Explain with examples. Give special reference to Microorganisms. **[7]**

Q6) a) Explain the concept of 'Circadian rhythm' with suitable examples. Add a note on its controlling mechanism. **[8]**

b) What is territory? Explain strategies used by animals to defend their territory. **[7]**

Q7) Write short notes on (Any three): **[3 × 5 = 15]**

a) Genetic diversity.

b) Reasons for loss of biodiversity in India.

c) Serological analysis in classification.

d) Growth forms of population.

Total No. of Questions : 7]

SEAT No. :

P1233

[Total No. of Pages : 2

[4919]-41
T. Y. B. Sc.
BIOTECHNOLOGY
Bb - 341 : Large Scale Manufacturing Process
(2008 Pattern) (Semester - IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Question no. 1 is compulsory.***
2) ***Answer any four questions from the remaining.***
3) ***Neat labelled diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***

Q1) Answer the following in 2-4 lines. **[10 × 2 = 20]**

a) Name the different scales in bioprocess giving their significance.

b) Define Del factor.

c) What is the role of molybdenum and chromium in fermenter construction material?

d) Give two advantages of immobilization of enzymes.

e) What are in-line sensors?

f) Define GMP.

g) Name two commonly used carbon sources in large scale fermentation media.

h) What is fed batch fermentation?

i) What are filter aids? Give two examples.

j) What are fixed cost?

Q2) a) What is solid state fermentation? Discuss solid state fermentation with respect to: **[8]**

i) Raw materials used.

ii) Factors affecting and

iii) Advantages and disadvantages.

b) Describe the gel entrapment and cross linking method of enzyme immobilization. **[7]**

P.T.O.

Q3) a) Explain with the help of flow diagram, the large scale production of any one antibiotic with reference to: **[10]**

i) Production strain.

ii) Medium and environmental conditions used.

iii) Down stream processing for product recovery.

b) Describe how distillation is used for recovery of a product. **[5]**

Q4) a) Discuss with the help of a diagram the continuous sterlization method of medium sterilization. **[8]**

b) Explain the role of Precursors and inhibitors in fermentation media. **[7]**

Q5) a) Discuss the different methods of temperature measurement and control during fermentation. **[8]**

b) Discuss the responsibilities of Quality Assurance department in a fermentation industry. **[7]**

Q6) a) Define K_{La}. Discuss the different factors affecting K_{La} values. **[8]**

b) Describe the different types of aerators used in a fermenter. **[7]**

Q7) Write short notes on (any three): **[3 × 5 = 15]**

a) AMES test.

b) Diagramatically representation of Packed Bed reactor.

c) Energy balances.

d) Foot and Mouth disease vaccine.

Total No. of Questions : 8]

SEAT No. :

P1234

[Total No. of Pages : 2

[4919]-42
T.Y. B.Sc.
BIOTECHNOLOGY
Bb - 342 : Biotechnology in Agriculture and Health
(2008 Pattern) (Semester-IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Answers to each section should be written in separate answer book.***
2) ***Question No. 1 and Q. 5 is compulsory.***
3) ***From remaining questions attempt any two from each section.***

SECTION-I

(AGRICULTURE)

Q1) Define or explain the following term: **[10]**

a) Ti - plasmid.

b) AFLP.

c) Micropropogation.

d) Cybrids.

e) DNA Banking.

Q2) a) How transgenic plants are produced? Discuss their advantages and disadvantages. **[8]**

b) What is metabolic engineering? Give its application with suitable examples. **[7]**

Q3) a) What is IPR? Explain detail process of filling a patent. **[8]**

b) How RFLP can be used as molecular marker? Give its applications. **[7]**

P.T.O.

Q4) Write short notes on: **[15]**

a) Cryopreservation.

b) Green House Technology.

c) Ethical & social aspects of GM crops.

SECTION-II

(HEALTH)

Q5) Attempt the following: **[10]**

a) Enlist the applications of Animal Tissue Culture.

b) What is complete medium.

c) Enlist two potential applications of Tissue Engineering.

d) What is cloning?

e) Write down two applications of molecular markers.

Q6) a) Explain the role of PCR in diagnostics. State its limitations as a diagnostic tool. **[7]**

b) How recombinant proteins are produced? By giving examples, add a note on its applications. **[8]**

Q7) a) Explain Human Genome Project & its implications in health and disease. **[8]**

b) What are monoclonal antibodies? Explain how they are produced by hybridoma technology. **[7]**

Q8) Write short notes on: **[15]**

a) DNA vaccines.

b) Biosensors.

c) Scale up to adherant culture.

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Total No. of Questions : 7]

SEAT No. :

P1235

[Total No. of Pages : 2

[4919]-43
T. Y. B. Sc.
BIOTECHNOLOGY
Bb - 343 : Recombinant DNA Technology
(2008 Pattern) (Semester - IV)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Q.1 is compulsory. Attempt any four out of the remaining questions.***
2) ***Draw neat and labelled diagrams wherever necessary.***
3) ***Figure to the right indicates full marks.***

Q1) Answer the following in 2-4 lines: **[20]**

a) Explain the role of polynucleotide kinase in genetic engineering.

b) Enlist guidelines in RDT.

c) What is the role of EDTA & SDS in DNA isolation?

d) What is α-complimentation?

e) Describe the significance of absorbance ratio at 260 & 280 nm.

f) What are λ - insertional vectors?

g) Enlist different membranes used in various blotting techniques.

h) Explain the concept of insertional inactivation.

i) Give any four methods of cell lysis.

j) Write importance of Thermus aquaticus in RDT.

Q2) a) Explain in detail the method used for construction of cDNA library. **[8]**

b) Describe various methods used for transformation of bacterial cells. **[7]**

P.T.O.

Q3) Write short notes on: **15]**

a) Properties of a good host.

b) RFLP.

c) Alkaline lysis method of plasmid isolation.

Q4) a) Distinguish between type I, II & III restriction enzymes. **[8]**

b) Explain the construction of cosmid vectors. Add a note on their applications. **[7]**

Q5) a) Describe different methods of selection of transformants. **[8]**

b) Discuss various applications of genetic engineering. **[7]**

Q6) a) Explain principle and applications of northern blotting in genetic engineering. **[8]**

b) Explain any one method of site directed mutagenesis. Add a note on its applications in health & agriculture. **[7]**

Q7) Describe in detail the DNA sequencing by Maxam Gilbert Method. **[15]**