

Total No. of Questions : 6]

SEAT No. :

[Total No. of Pages : 3

P1013

[4719]-101

S.Y. B.Sc.

BIOTECHNOLOGY

**Bb-211 : Genetics & Immunology
(Semester-I) (2013 Pattern)**

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:

[10 x 2 = 20]

- a) Define overdominance.
- b) What are spontaneous mutations?
- c) Define operon.
- d) What are stringent plasmids?
- e) Why fungi are used very frequently for tetrad analysis?
- f) Define aneuploidy.
- g) What is a Karyotype?
- h) Enumerate different pairs of characters in pea plant used to derive Mendel's laws.
- i) Define expressivity.
- j) What are jumping genes?

P.T.O.

Q2) Answer the following:

[5 x 2 = 20]

- a) IgA & its significance.
- b) What is passive immunity?
- c) Name the cells involved in innate immune response.
- d) DNA vaccines & its disadvantages.
- e) Differentiate between primary and secondary lymphoid organs.

Q3) Attempt Any Three of the following:

[3 x 5 = 15]

- a) Describe complete and incomplete linkage with suitable examples.
- b) Explain the mechanism of lactose operon. Add a note on catabolite repression.
- c) What is recessive epistasis? Explain with a suitable example, how it affects Mendelian ratios.
- d) With a neat, labelled diagram, explain bacterial conjugation.

Q4) Attempt Any Three of the following:

[3 x 5 = 15]

- a) Write a note on euploidy.
- b) Explain the structure of transposable elements in prokaryotes. Describe their mechanism of transposition.
- c) Describe significance of Hardy-Weinberg principle.
- d) Write a note on barr bodies.

Q5) Attempt Any One of the following:

[10]

- a) With the help of neat, labelled diagram, explain the mechanism of specialized transduction.
- b) What are chromosomal aberrations? Explain any two types of structural aberrations with reference to their types, mechanism & biological significance.

Q6) Attempt Any Two of the following:

[2 x 5 = 10]

- a) Give a brief account of the various factors responsible for immunogenicity.
- b) Differentiate between innate and acquired immunity.
- c) Write the principle of Western blot and its applications.
- d) Describe the structure and function of antibodies.

●●●●●

Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 2

P1014

[4719]-102

S.Y.B.Sc.

BIOTECHNOLOGY

Bb - 212: Cell Biology

(2013 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) *Draw neat labelled diagrams wherever necessary.*

Q1) Answer in brief:

[10x2=20]

- a) Define: 'S' phase of cell cycle.
- b) Comment on role of cholesterol in cell membrane.
- c) Justify: Just before 'M' phase the chromosome content becomes 4n.
- d) What is the role of peroxisomes.
- e) Define glycocalyx.
- f) Enlist any four components of ECM (Extracellular matrix).
- g) Explain cis and trans golgi.
- h) What is signal peptide?
- i) Describe ATPase complex.
- j) Enlist post-translational modifications of proteins.

Q2) Short notes (any Three)

[3x5=15]

- a) Cdk proteins and their role.
- b) KDEL sequence and it's significance.
- c) Apoptosis.
- d) Bacterial cell membrane.

P.T.O.

Q3) Attempt any three of the following:

[3x5=15]

- a) What are plasmodesmata? Elaborate with the help of suitable diagram.
- b) Explain in detail: Why meiosis is termed as reductional division.
- c) What are microtubules? Explain their role in any cell function.
- d) Mitochondrial double membrane.

Q4) a) Describe in detail the process of protein folding in endoplasmic reticulum.

[7]

- b) Na^+ / K^+ pump and its role in maintaining membrane potential. **[8]**

Q5) a) Describe in detail structure of nuclear pore complex. Add a note on its function. **[7]**

- b) What is oxidative phosphorylation? Explain the process in detail. **[8]**

EEE

Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 2

P1015

[4719] - 103

S.Y. B.Sc.

BIOTECHNOLOGY

**Bb - 213 : Environmental Biology and Biotechnology
(2013 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) Draw neat and labelled diagrams wherever necessary.*

Q1) Answer in 2-3 sentences:

[10 × 2 = 20]

- a) What is hydrosphere?
- b) Define ecosystem.
- c) What is grazing food chain?
- d) Define gross primary productivity.
- e) What is autogenic succession?
- f) What is red data book?
- g) What do you understand by in situ conservation?
- h) Explain GIS.
- i) What is phytoremediation?
- j) Define Pollution.

Q2) Write short notes on (Any three):

[3 × 5 = 15]

- a) EIA.
- b) Ozone layer.
- c) Anthropogenic factors affecting ecosystems.
- d) Energy flow in ecosystems.

P.T.O.

Q3) Answer the following questions (Any three):

[3 × 5 = 15]

- a) Describe the stages of succession in hydrosere.
- b) With help of diagram, describe the carbon cycle.
- c) Write a note on heavy metal pollution.
- d) Explain the Forest conservation Act, 1980.

Q4) a) Briefly discuss the strategies for conservation of rare and threatened biological species with emphasis on role of biotechnology in it. **[7]**

- b) Discuss in detail the factors affecting microbial bioremediation of oil spills. **[8]**

Q5) a) What do you understand by Integrated waste management? Discuss with suitable examples. **[7]**

- b) Enumerate in detail the causative factors of water pollution. **[8]**



Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 2

P1000

[4719]-11

S.Y. B.Sc.

BIOTECHNOLOGY

Bb-211 : Genetics and Immunology

(Semester-I) (2008 Pattern)

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 diagram wherever necessary.*

Q1) Attempt the following:

[20]

- a) Difference between paracentric & pericentric inversions.
- b) Define operon.
- c) What are jumping genes?
- d) Define back cross and test cross.
- e) What are relaxed plasmid?
- f) Define immunogenicity?
- g) IgG and its significance.
- h) Hapten.
- i) Thelper cell.
- j) Define agglutination.

Q2) a) Explain in detail the process of bacterial transformation.

[8]

OR

Write a detailed account of variations in chromosome number.

P.T.O.

- b) With a help of neat labelled diagram, describe the mechanism of specialized transduction. [7]

OR

What are mutagens? Explain the role of uv-radiation and depurinating agents in induction of mutations.

Q3) Answer the following (Any Three): [15]

- a) Differentiate between Innate and Acquired Immunity.
- b) Describe in brief the process of phagocytosis.
- c) Difference between monoclonal and polyclonal antibodies.
- d) How Recombinant Vaccines are formed?
- e) Explain in brief the morphology and function of lymph node.

Q4) a) Write in detail the various barriers of Innate Immune response. [8]

OR

Explain the working principle of Western Blot and write its application.

- b) Describe in detail the structure of immunoglobulin and write the functions of various immunoglobulins. [7]

OR

Define complement. Compare classical and alternate pathways.

Q5) Write in brief (Any Three): [15]

- a) What are supplementary genes? How they influence Mendelian ratios?
- b) Explain Multiple alleles with suitable examples.
- c) Write a note on composite and non-composite transposons.
- d) Explain role of cAMP in gene regulation.
- e) What are chromosomal aberrations? Describe deletions and duplications as chromosomal aberrations.



Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 2

P1001

[4719]-12

S.Y.B.Sc.

BIOTECHNOLOGY

Bb - 212: Cell Biology

(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) *Draw neat labelled diagrams wherever necessary.*

Q1) Answer in brief:

[10x2=20]

- a) Define: Glycoproteins.
- b) Enlist atleast four cell shapes.
- c) Give role of lysosomes.
- d) Comment on leptotene phase of meiosis.
- e) Write a role of neural tissue.
- f) Give role of IP_3 and DAG in cell signaling.
- g) Write the principle of ultra centrifugation.
- h) Enlist four components of ECM.
- i) Chromosomes can be observed during mitosis: Justify.
- j) Define G_1 phase of cell cycle.

Q2) Short notes (any Three)

[3x5=15]

- a) Cell senescence.
- b) Protein transport to chloroplast.
- c) Tissue of endodermal origin.
- d) Neat labelled diagram of ultrastructure of mitochondria.

P.T.O.

Q3) Attempt Any Three of the following:

[3x5=15]

- a) What are desmosomes? Explain its structure.
- b) Write a note on dark and bright field microscopy.
- c) Define cell differentiation. Explain the cellular events that take place in cell differentiation.
- d) Comment on intermediate filaments.

Q4) Explain in detail vesicular transport.

[15]

OR

Explain in detail the concept of cytoskeleton, its components and functions.

Q5) a) Describe cell signaling pathway which involves tyrosine kinase receptors. **[7]**

b) Explain in detail structure and function of bacterial cell wall. **[8]**

EEE

Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 2

P1002

[4719] - 13

S.Y. B.Sc.

BIOTECHNOLOGY

**Bb - 213 : Molecular Biology
(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) *Draw neat labelled diagrams wherever necessary.*

Q1) Answer in brief:

[10 × 2 = 20]

- a) Define T_m .
- b) What is heterochromatin and where it is located?
- c) What do you mean by universal nature of genetic code.
- d) What is the role of topoisomerase in DNA replication.
- e) How EtBr brings mutation in DNA.
- f) Give the role of DNA pol I enzyme.
- g) Define : Transversion.
- h) What are ribozymes?
- i) What is the role of elongation factors EF-Tu and EF - Ts.
- j) Pribnow Box.

Q2) Write short notes on (Any three):

[3 × 5 = 15]

- a) Avery, MacLeod and McCarty Experiment.
- b) Different types of r(RNA) in eukaryotes.
- c) HI is working as a linker DNA. Justify.
- d) Explain in brief structure of prokaryotic and eukaryotic promoters.

P.T.O.

Q3) a) Explain the process of DNA replication in eukaryotes. [7]

OR

What is mutation? Enlist its various types. How SOS repair mechanism is brought in action.

b) Describe different binding sites of t(RNA). Write a note on “Webble Hypothesis”. [8]

Q4) a) Give an overviews of lac operon. [7]

OR

Explain the splicing of introns by spliceosome formation.

b) Explain different stages of transcription in prokaryotes. [8]

Q5) What is protein transport? Diagrammaticlly explain how proteins are transported in a cell? [15]

OR

Compare and contrast prokaryotic and eukaryotic protein synthesis.



Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 2

P1016

[4719] - 201

S.Y. B.Sc.

BIOTECHNOLOGY

**Bb - 221 : Molecular Biology
(2013 Pattern) (Semester - II)**

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

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

Q1) Answer in 2-3 sentences:

[10 × 2 = 20]

- a) What is A-form of DNA?
- b) Comment on the concept of centromere.
- c) Define: Central Dogma.
- d) Give any two examples of inhibitors of transcription and their mode of action.
- e) What is hetero chromatin?
- f) Write the role of topoisomerase and single strand binding proteins.
- g) Give the function of non-coding RNAs.
- h) What is 'splicing'?
- i) What is 'TATA box'?
- j) Write conclusion of experiment performed by Avery, Mcleod and Mc Carty.

Q2) Write short notes on (any three):

[3 × 5 = 15]

- a) UV-induced mutations and repair.
- b) Regulation of Arabinose operon.
- c) Chloroplast Genome organization.
- d) Poly nucleosome.

P.T.O.

Q3) Answer the following (any three):

[3 × 5 = 15]

- a) Write a note on, 'Wobble hypothesis'.
- b) Explain the structure of DNA polymerase in E.coli.
- c) Explain the process of protein translocation to nucleus.
- d) Define: Ubiquitination. Add a note on the process and significance of ubiquitination.

Q4) Answer any one:

[1 × 15 = 15]

- a) Explain in detail the process of protein synthesis from RNA.

OR

- b) Describe replication in eukaryotes.

Q5) Answer any one:

[1 × 15 = 15]

- a) Explain in detail process of transcription in prokaryotes.

OR

- b) Explain the organization of genome from DNA to chromosomes.



Total No. of Questions : 6]

SEAT No. :

[Total No. of Pages : 2

P1017

[4719]-202

S.Y.B.Sc.

BIOTECHNOLOGY

**Bb - 222: Plant & Animal Development
(2013 Pattern) (Semester - II)**

Time : 3 Hours]

[Max. Marks :80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Answer to the two sections should be written in separate answer sheets.*
- 3) *Draw neat diagrams wherever necessary.*
- 4) *Figures to the right indicate full marks.*

SECTION - I

(Plant Development)

Q1) Answer in 2- 3 sentences:

[5x2=10]

- a) What is anatropous ovule?
- b) Define competence.
- c) What is a suspensor?
- d) Define microsporogenesis.
- e) What is quiescent centre?

Q2) Attempt any four of the following:

[4x5=20]

- a) Explain unique features of plant development.
- b) Define endosperm. Enlist and explain types of endosperms in plants.
- c) Write a note on in vitro organogenesis.
- d) Enlist and explain genes involved in vegetative development in Arabidopsis.
- e) What is tapetum? Describe in detail, structure and types of tapetum.
- f) Explain role of programmed cell death in plant development.

P.T.O.

Q3) Attempt any one:

[1x10=10]

- a) Explain in detail, Fucus as a model system to understand plant development.
- b) With neat, labelled diagrams, explain embryo development in dicotyledons.

SECTION - II

(Animal Development)

Q4) Answer the following:

[5x2=10]

- a) How does gastrulation initiate in birds ?
- b) Explain the pattern of cleavage when mass of yolk restricts cleavage to the certain part of egg.
- c) Differentiate between redifferentiation and transdifferentiation.
- d) Ageing is multifactorial process. Justify.
- e) Developing foetus is sensitive to environmental factors. Explain.

Q5) Attempt the following (Any 4):

[4x5=20]

- a) Explain in detail about the process of neurulation.
- b) How does egg permit only one sperm for the process of fertilization?
- c) During oogenesis, haploid gamete formation and maturation are simultaneous. Justify.
- d) Deposition of maternal mRNA in oocyte of *Drosophila* is an important step for axis formation of future embryo. Explain.
- e) Explain the term cell lineage with one example.
- f) Cell death is a part of normal development. Explain with example.

Q6) Explain the process of formation of three different germ layers in frog embryo.

[1x10=10]

OR

Write in detail the events involved in the process of fertilization in human.

[1x10=10]

EEE

Total No. of Questions : 3]

SEAT No. :

[Total No. of Pages : 2

P1018

[4719]-203

S.Y.B.Sc.

BIOTECHNOLOGY

**Bb - 223: Scientific writing and Communication
(2013 Pattern) (Semester - II)**

Time : 2 Hours]

[Max. Marks :40

Instructions to the candidates:

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

Q1) Answer in brief:

[5x2=10]

- a) Define 'Hypothesis'.
- b) What is the meaning of deductive reasoning?
- c) What is the meaning of Impact Factor of a journal?
- d) Attempt the phonetic transcription of the following words-
 - i) Academy
 - ii) Enzyme
- e) Form the antonyms by using prefix or suffix
 - i) Capable
 - ii) Realistic

Q2) Write short notes on (Any 4)

[4x5=20]

- a) What is the importance of clarity in writing materials and methods in a research article?
- b) What are the likely sources of errors in writing results in a research article.

P.T.O.

- c) What are the different aspects which should be considered while making a power point presentation?
- d) What are the aspects of effective speaking?
- e) What are the characteristics of effective writing.
- f) State the importance of pronunciation in oral presentation.

Q3) Give a detailed description of :(Any One)

[1x10=10]

Describe the IMRAD format of manuscript writing.

OR

How can one make planning and organization effective in oral presentation?

EEE

Total No. of Questions : 3]

SEAT No. :

[Total No. of Pages : 1

P1019

[4719] - 204

S.Y.B.Sc.

BIOTECHNOLOGY

Bb-224: Metabolic Pathways

(2013 Pattern) (Semester - II)

Time : 2 Hours]

[Max. Marks : 40

Instructions to the candidates:

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

Q1) Answer in 2-3 sentences:

[5×2 = 10]

- a) Define Gibb's free energy.
- b) What is oxidation reduction reaction?
- c) Give significance of cholesterol.
- d) Define turnover number of enzymes.
- e) What is metabolism?

Q2) Attempt any four:

[4×5 = 20]

- a) Differentiate between competitive and non-competitive inhibition.
- b) Describe in detail, glycogen breakdown.
- c) Write a note on allosteric enzymes and their regulation.
- d) Describe pyruvate dehydrogenase as a multienzyme complex.
- e) Explain transamination and deamination reactions.
- f) Write a note on fatty acid synthase complex.

Q3) Attempt any one:

[1×10 = 10]

- a) Describe in detail, pentose phosphate pathway. Add a note on regulation of pathway.
- b) Explain in detail, C4 pathway of photosynthesis.



Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 2

P1003

[4719] - 21

S.Y. B.Sc.

BIOTECHNOLOGY

Bb - 221 : Environmental Biology and 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 2-3 sentences:

[10 × 2 = 20]

- a) Ecology.
- b) Food chain.
- c) Cybernettics.
- d) Gross primary productivity.
- e) Autotrophs.
- f) Detritus food chain.
- g) Bioremediation.
- h) Radiation pollution.
- i) Allogenic succession.
- j) Pyramid of energy.

Q2) Write short notes on (Any three):

[3 × 5 = 15]

- a) Shelford's Law of tolerance.
- b) Nitrogen cycle.
- c) Energy budget in Ecosystem.
- d) Gaia's hypothesis.

P.T.O.

- Q3)** a) Write a note on biochemical methods for detection of pollution. [7]
b) Describe the various stages involved in xerosere succession. [8]

Q4) Write short notes on [Any three]: [3 × 5 = 15]

- a) Acid rain.
- b) Biomagnification.
- c) Global warming.
- d) Biotransformation of plastics.

- Q5)** a) What is food spoilage? Write a note on factors affecting spoilage of milk and milk products. [7]
b) Describe the structural components of a forest ecosystem, explaining the flow of energy through it. [8]



Total No. of Questions : 6]

SEAT No. :

[Total No. of Pages : 2

P1004

[4719]-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) All questions are compulsory..*
- 2) Figures to the right indicates full marks.*
- 3) Draw neat and labelled diagrams wherever necessary.*
- 4) Answers to the two sections should be written in separate answer sheet.*

SECTION - I

(Plant Tissue Culture)

Q1) Attempt the following (any four)

[4x2=8]

- a) Define totipotency.
- b) What is cell synchronization?
- c) Write the important contribution of Guha and Maheshwari.
- d) What is organogenesis?
- e) Give two advantages of haploids.

Q2) a) Write in detail Agrobacterium mediated transformation in plants and comment on its applications. **[8]**

b) Describe the organization of plant tissue culture laboratory. **[8]**

Q3) Short notes (any four):

[4x4=16]

- a) Auxins and cytokinins.
- b) Somatic embryogenesis.
- c) Protoplast fusion methods.
- d) Cybrids.
- e) Suspension culture.

P.T.O.

SECTION - II
(Animal Tissue Culture)

Q4) Answer in brief (Any 4): **[4x2=8]**

- a) Define: Contact inhibition.
- b) Role of collagen in ATC.
- c) What is histotypic culture.
- d) Define: continuous cell line.
- e) Define: Cell lineage.
- f) What are the alternatives to trypsinization in ATC?

Q5) a) Enlist different types of contaminations in ATC. Explain in detail any one method of detection of contamination. **[8]**

- b) Describe the concept and procedure of cryopreservation of animal cells in detail. **[8]**

Q6) Write Short Notes (any 4): **[4x4=16]**

- a) Organ culture.
- b) Properties of transformed cells.
- c) Application of Animal Cell Culture.
- d) Serum free medium.
- e) Cell characterization.
- f) Primary culture.

EEE

Total No. of Questions : 5]

SEAT No. :

P1005

[4719] - 23

[Total No. of Pages :4

S.Y.B.Sc.

Bb-223: ENGLISH

Biotechnology

(Semester-II) (2008 Pattern)

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.

Nobody knows why we sleep, but we all need to. Normal sleep is made up of two alternating phases- orthodox sleep and paradox sleep. Orthodox sleep, involving no dreaming, usually takes place in the early part of the night. paradoxical sleep is associated with dreaming and occurs mostly in the later part of the night. If you wake up during this phase, you will almost certainly remember your dreams.

When we are asleep, the bodily functions slow down. Body temperature falls. This is because our body keeps to a regular 24-hour cycle-the circadian rhythm-during which body temperature rises and falls at fixed times. Normally, body temperature is lowest in the middle of the night and highest in the afternoon.

If you miss a couple of hours of sleep, no harm is done. You may feel tired and irritable the next day but the body soon makes up for the loss. If you try to stay awake night after night, however, you soon begin to behave strangely and lose the ability to concentrate.

A lot of people have serious sleep problems. Some people find that they cannot get to sleep: Some wake up in the middle of the night or too early in the morning. There are a number of causes. Worry and depression are the most common. All kinds of things in the environment can affect sleep-noise, light, heat, cold or new surroundings. Pain and illness can also keep people awake. Although most of us can accept temporary sleeplessness, 3.5 million people in Britain alone take drug to help them sleep. Many people become addicted to their sleeping pills which, however, do not deal with the causes of insomnia. It is better to avoid them, and, much better to identify the problem and remove it.

P.T.O.

Questions:

- a) What are the two phases of normal sleep? [2]
- b) What is circadian rhythm? [2]
- c) What are the problems of missing sleep for two hours? [2]
- d) What are serious sleep problems? [2]
- B) Expand any one of the following ideas into fifteen sentences. [8]
 - a) Dirt creates hell, cleanliness, heaven.
 - b) Slow and steady wins the race.

Q2) A) Attempt the following:

- a) Give noun forms of the following words (Any Four), [2]
Calculate, soluble, compute, achieve, active.
- b) Give verb forms of the following words.(Any Four), [2]
Construction, arrival enforcement, manager, workable.
- c) Give adjective forms of the following words.(Any Four), [2]
answer, produce, convert, soil, stranger.
- B) Provide one word for the following groups of words.(Any Four) [4]
 - a) The art of arranging steps and movements in dancing.
 - b) A person whose job involves designing and building engines, machines, roads, bridges, etc.
 - c) Something that one cannot avoid or prevent.
 - d) A place where shares of companies are bought or sold.
 - e) A machine like a box where eggs are kept warm until the young birds are born.
- C) Use correct forms of verbs and complete the sentences (Any Four):[4]
 - a) Yesterday, I (do+not+have) much time to complete the journal.
 - b) Now she (look) cool in white dress.
 - c) I have (finish) my work.
 - d) The students (be+discuss) in the laboratory at this moment.
 - e) It (take) little time to reach Delhi by plane.

- D) Use articles *a, an, the* and complete the paragraph.
 A school has --- number of disciples. There must be--- integration and discipline among them. In fact----- word ‘discipline’ is derived from disciples, i.e. followers. Students should behave in a decent manner follow rules. They should not play mischief in ---- school. [2]

- Q3)** A) Convert the following information in the form of a comparative and analytical paragraph of about 15 sentences. [8]

Number of PhD's Awarded by the kakatiya University, Hyderabad

Year	Arts	Mental and Moral Sciences	Science	Commerce
2008-09	21	73	42	12
2009-10	24	130	62	15
2010-11	28	150	87	15
2011 -12	33	135	65	16
2012-13	40	140	64	13

- B) Explain the procedure of formation of H₂S gas in laboratory. [8]

OR

- C) Write a review of a movie that you watched recently. [8]

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

Electricity is the most romantic of all inventions. It is nothing short of a wonder. It is a miracle and it works miracles.

It gives us light. As soon as we press a button, our room or office is lighted. If you keep many lamps in your drawing room they will shine together and will dazzle you. An exhibition ground or a wedding place is turned into a romantic place under the dazzling lights of myriads of multi-coloured electric lamps. And when trees are decorated with these lights, the whole place wears an appearance of a fairy land.

Today we see films in theatres with the help of electricity. It has given us X-ray which pierces through our body and makes bare its every limb to the naked eye. Is it not a wonder?

Another romance of electricity is the driving power which it gives to machines, vehicles, etc. Trains and metros run with its help. It moves machines of factories. With its help we cook our food, wash our clothes

and clean our houses. If we wish to go to the fiftieth storey of a building, we can use lift and it saves our efforts.

There is no sphere of life in which electricity does not work wonders. Like an invisible man it is at your service at all hours of the day or night. The wonder is its services are not only useful but are cheap and wonderful.

B) Punctuate the following sentences: [8]

- a) Anukul said severely ramchandran you must not stay here.
- b) Where shall i go master replied raicharan in a choking voice.
- c) Sundaran said in old who will take in an old man as a servant.
- d) Madhumita said let him stay i forgive him.

OR

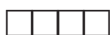
As a Secretary of your class prepare a report of a visit to production unit of Mother's Recipe. [8]

Q5) A) Write an application for the post of a Microbiologist in a company that produces various food items. [8]

B) Form one word each with the following prefixes and suffixes. [8]

Prefixes: re-; inter-; im-; extra-

Suffixes: -dom; -ible; -ion; -ist



Total No. of Questions : 5]

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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 Gibb's free energy.
- b) Contrast between TPP and Biotin.
- c) What is de novo pathway?
- d) How β and ω oxidation differs from each other.
- e) Define amphibolic pathway.
- f) What is gluconeogenesis.
- g) Enlist the enzymes participating in C_3 pathway.
- h) What is Alkaptonuria?
- i) Name the steps in which oxidation takes place in glycolysis.
- j) Enlist two biological uncouplers of electron transport chain.

Q2) Answer the following. (Any Three).

[3×5 = 15]

- a) Discuss Malate-Aspartate Shuttle.

P.T.O.

- b) Explain carnitine translocating fatty acid.
- c) Write a short notes on feed back inhibition.
- d) Describe substrate level phosphorylation.

Q3) Write a short notes on the following (Any Three).

[3×5 = 15]

- a) Regulation of gluconeogenesis.
- b) Covalent modification.
- c) Inhibitors of ETC and oxidative phosphorylation.
- d) Fatty acid synthase complex.

Q4) a) Describe purine synthesis & its regulation.

[8]

b) Write an account on TCA cycle.

[7]

OR

a) Describe transamination and deamination reactions.

[8]

b) Describe bioenergetics of palmitate oxidation.

[7]

Q5) a) Explain gluconeogenesis and write a note on its regulation.

[8]

b) Discuss oxidative phase of HMP pathway.

[7]

OR

a) Discuss 'z' scheme of photosynthesis.

[8]

b) Describe in detail ATP synthase complex.

[7]

