

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

परास्नातक कार्यक्रम अधिन्यास सत्र

Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH-01	कोर्स शीर्षक:- (Course Title) Cell Biology & Biomolecules	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों क उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Sketch the prokaryotic and eukaryotic cells? Mention the salient differences between these two cells.

Q.No. 2: Writes notes of following:

(a) Endoplasmic reticulum: structure and function.

(b) Chloroplasts and their importance.

Q.No. 3: Define a carbohydrate. Classify carbohydrates and write one example of each class.

Q.No. 4: Describe the structure and function of hemoglobin.

Q.No. 5: What are lipids? Classified lipids and write their functions with suitable example.

Q.No. 6: Describe the process of aging and cellular death?

Q.No. 7: Describe the ultra structure of an animal cell?

Q.No. 8: Explain different stages of meiosis with suitable diagrams?

Q.No. 9: What is a sub-cellular organelle? Explain the structure and function of Golgi complex and endoplasmic reticulum.

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

- Q.No. 1: Define an Enzymes and enumerate their general properties.
- Q.No. 2: Define Michalis- Menten equation and mention the significance of Michaelis-Menten Constant.
- Q.No. 3: Explain structure of donable stranded DNA.
- Q.No. 4: Sketch structure of t-RNA and describe its functions.
- Q.No. 5: Explain changes in properties of DNA after denaturation.
- Q.No. 6: Discuss RNA processing in Eukaryotes?
- Q.No. 7: Describe different types of co-enzymes?
- Q.No. 8: Write about Biological Importance of Lipids?
- Q.No. 9: Explain that DNA id the basic genetic material?
- Q.No. 10: Structure of hemoglobin and its functions.
- Q.No. 11: What is cytoskeleton? Mention its functions.
- Q.No. 12: Illustrate the functions of animal polysaccharide. How is it different from starch?

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH-02	कोर्स शीर्षक:— (Course Title) Analytical Biochemistry	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों क उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe the principle of uv-visible spectrophotometry. Derive Limbert Beer's Law and enumerate its properties. 6

Q.No. 2: Describe the principle, instrumentation and applications of HPLC. How is it different from HPLC? 6

Q.No. 3: Define electrophoresis. Explain principle and applications of SDS-PAGE.

Q.No. 4: Describe the principal of auto-radiography?

Q.No. 5: What is PCR? Describe its components and procedure?

Q.No. 6: Describe the basic principle of column chromatography?

Q.No. 7: What is spectroscopy? Differentiate colorimetry from uv-visible spectra-photometry.

Q.No. 8: Describe the principle, instrumentation and applications of HPLC.

Q.No. 9: Write the principle of centrifugation and varied application of different centrifuges.

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

- Q.No. 1: Write about agarose gel electrophoresis and its applications.
- Q.No. 2: What is isoelectric focusing? Write its applications.
- Q.No. 3: Explain density gradient centrifugation and its significance.
- Q.No. 4: Discuss gel filtration chromatography and its applications.
- Q.No. 5: Differentiate ion-exchange chromatography from gel filtration.
- Q.No. 6: Principle of ultra centrifugation.
- Q.No. 7: Principles of electron microscopy and its applications.
- Q.No. 8: Isoelectric focusing and its applications.
- Q.No. 9: Radio-immunoassay?
- Q.No. 10: Theory and practice of "Paper Chromatography"?
- Q.No. 11: Nucleic acid hybridization?
- Q.No. 12: Explain different tests for biochemical presence of Carbohydrates, fats and proteins?

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH-03	कोर्स शीर्षक:- (Course Title) Nutrition and physiology	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe the Nature Occurrence, structure and biological importance of vitamin A.

Q.No. 2: Discuss the significance of hormones of adrenal Medulla.

Q.No. 3: Discuss the components of Immune System.

Q.No. 4: Describe basal metabolic rate and discuss factors affecting it.

Q.No. 5: Enumerate various types of cells present in blood and describe their functions.

Q.No. 6: Discuss composition and functions of pancreatic juice and bile.

Q.No. 7: Describe measurement of calorific value of food and discuss important functions of nutrients?

Q.No. 8: Describe biochemical roles of riboflavin, niacin and folic acid in metabolism?

Q.No. 9: Differentiate between serum and plasma, give detailed account of blood coagulation?

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

- Q.No. 1: Describe different types of viral vaccine.
- Q.No. 2: Give an account of β -Oxidation of fatty-acids.
- Q.No. 3: Describe synaptic transmission.
- Q.No. 4: Trechanism of action of cyclic AMP and the cascade effect.
- Q.No. 5: Define protein quality.
- Q.No. 6: Explain biochemical functions of vitamin-B complex.
- Q.No. 7: Describe breathing and its regulation.
- Q.No. 8: Describe essential amino acids.
- Q.No. 9: Protein quality,
- Q.No. 10: Composition of bile,
- Q.No. 11: Regulation of breathing,
- Q.No. 12: BMR

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH-04(N)/ PGBCH-05(O)	कोर्स शीर्षक:– (Course Title) Bioenergetics & Metabolism	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों क उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe the mechanism of Oxidative Phosphorylation and ATP synthesis.

Q.No. 2: Explain the β -Oxidation of fatty-acids.

Q.No. 3: Discuss the interrelationship of the EMP, HMP and ED pathways.

Q.No. 4: Describe basic concepts of bioenergetics and explain its significance in biological studies.

Q.No. 5: Describe steps involved in glycolysis and highlight its differences from gluconeogenesis.

Q.No. 6: Classify amino acids and describe general reactions of acidic amino acids.

Q.No. 7: What are high energy iompams? Discuss phosphate group transfer potential of ATP?

Q.No. 8: Describe components of electron transport chain and mechanism of ATP portion?

Q.No. 9: Classify amino acids and explain oxidative domination?

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

- Q.No. 1 : Describe the functions of transferees.
- Q.No. 2 : Describe the structure and properties of Hemoglobin.
- Q.No. 3 : Discuss the biological importance of Nucleic Acids.
- Q.No. 4 : Describe the free energy changes in Oxidation- reduction reactions.
- Q.No. 5: Describe importance of coenzymes in biochemical studies. 3
- Q.No. 6: Briefly describe components of election transport chain. 3
- Q.No. 7: Explain oxidative deamination of aminoacids. 3
- Q.No. 8: Give schematic representation of urea cycle.
- Q.No. 9: Metabolic role of pyridoxal phosphate,
- Q.No. 10: Fermentation,
- Q.No. 11: Lencine metabolism,
- Q.No. 12: Regulation of urea agile.

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 06(N)	कोर्स शीर्षक:- (Course Title) Advance Immunology	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों क उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Define Immunity. Differentiate innate immunity from acquired immunity with suitable example?

Q.No. 2: Describe MHC Class I and MHC class II proteins modeless and their functions.

Q.No. 3: Differentiate β -cells for T-cell write suitable example.

Q.No. 4: Describe physical and chemical barriers to entry of microbes in the body.

Q.No. 5: Differentiate between antigen and haptene. Describe criteria of antigenicity.

Q.No. 6: Discuss structural features of seretary antibodies and describe importance of various parts of antibody in immunity.

Q.No. 7: Discuss Immune response to infection diseases

Q.No. 8: Differentiate Hypersensitivity and Transplantation Immunology

Q.No. 9: Discuss Major and Minor histocompatibility

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q.No. 1: Define antibodies mention the different classes and their functions.

Q.No. 2: Describe complement system and its role in immunity.

Q.No. 3: Define a vaccine and write about its different types.

Q.No. 4: What is hypersensitivity? How is it treated.

Q.No. 5: Primary and Secondary Immune Response

Q.No. 6: ELISA

Q.No. 7: Opsonization

Q.No. 8: Passive Immunity

Q.No. 9: Immunology of Tumors

Q.No. 10: Immunodeficiency Diseases

Q.No. 11: T-cell maturation

Q.No. 12: Antibodies (Immuno-globulins)

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 07(N)	कोर्स शीर्षक:- (Course Title) Reserch Methodlogy	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों क उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: What is research design? Also explain the significance of research?

Q.No. 2: Distinguish between the following:

a) Random sampling & non-random sampling,

b) Condense level & significance level,

c) Point estimation & interval estimation,

Q.No. 3: What do you mean by the power of hypothesis test, How can it be measured?

Q.No. 4: What is Research Problem? Selecting the Problem, Necessity of and Techniques in defining the problem

Q.No. 5: Hypothesis Testing of Means, hypothesis testing of Correlation coefficients

Q.No. 6: Correlation, Regression and Chi- square test

Q.No. 7: Collection of Data through questionnaire and Schedules

Q.No. 8: Analysis of Variance and Co-variance

Q.No. 9: What do you mean by Research Methods v/s Methodology

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q. No. 1: A sample of 10 is drawn randomly from a certain population. The sum of the squared deviations from the mean of the given sample is 50. Test the population is 5 at 5% level of significance,

X^2_9 Give the Tab =16.92

Q. No. 2: Give the AMOVA Table for two ways classified data also state the basic assumption for ANOVA and ANCOVA,

Q. No. 3: Discuss about the mann-cohithey V-lest?

Q. No. 4: Discuss about the Case Study Method

Q. No. 5: Limitations of Tests of hypothesis?

Q. No. 6: Dispersion?

Q. No. 7: Measures of Central Tendency?

Q. No. 8: Discuss Survey v/s experiment

Q. No. 9: Objectives of Research?

Q. No. 10: Research and Scientific Methods?

Q. No. 11: Selecting Random Samples?

Q. No. 12: Guidelines for developing questionnaire?

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH-08(N)	कोर्स शीर्षक:- (Course Title) Bio Statistics	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों क उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Calculate standard deviation from the following data:

C.I.	0-10	10-20	20-30	30-40	40-50
F	12	24	58	31	17

Q.No. 2: Calculate the value of correlation coefficient (Karl Pearson Correlation coefficient) from following data of two variables:

X:	68	72	56	75	58	80
Y:	52	49	39	60	55	42

Q.No. 3: Discuss about the "Test of Goodness of fit"?

Q.No. 4: Discuss about the Statistics in Medical Research?

Q.No. 5: Discuss Diagnostic Test Studies and Receiver Operating Characteristic Curve (ROC)

Q.No. 6: Intra Class Correlation Coefficient (ICC)

Q.No. 7: Sources of Vital Statistics and Demographic Data and Measures of Mortality?

Q.No. 8: Definition of Survival Times and Survival Function and Curves?

Q.No. 9: Discuss Epidemiologic Study Designs and Analysis

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q. No. 1: Write short note on Degree of freedom.

Q. No. 2: Discuss about the simple random sampling, also define its mean and variance?

Q. No. 3: Discuss about the normal distribution, also density its distribution

Q. No. 4: Level of significance.

Q. No. 5: Type I and Type II error,

Q. No. 6: Relationship between One-Way Anova and Multiple Regression

Q. No. 7: Two-Way Anova

Q. No. 8: Fisher's Exact Test for 2x2 Tables

Q. No. 9: Wilcoxon Signed Rank Test

Q. No. 10: Correlation Coefficient and Its Misuse

Q. No. 11: Measures of Mortality and Fertility

Q. No. 12: Heterogeneity in Meta Analysis?

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

परास्नातक कार्यक्रम अधिन्यास सत्र

Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 09(N)	कोर्स शीर्षक:- (Course Title) Bio Informatic	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों क उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Discuss importance of bioinformatics studies in modern biology.

Q.No. 2: Classify biological databases.

Q.No. 3: Describe biological annotations and data curations.

Q.No. 4: Recognition Ab initio/ De novo Method

Q.No. 5: Describe Concept of Alignment, Scoring Matrices, PAM, BLOSUM

Q.No. 6: Discuss Methods of Protein Modelling?

Q.No. 7: Briefing on Drug Bank, Auto Dock- The Docking Software and Auto Dock Tools (ADT)

Q.No. 8: Structural Bioinformatics in Drug Discovery, SAR and QSAR Techniques in Drug Design?

Q.No. 9: Simulation and Statistical Protocols with Monte Carlo Methods

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q.No. 1: SCOP

Q.No. 2: BLAST

Q.No. 3: Molecular File Formats

Q.No. 4: Molecular Phylogeny

Q.No. 5: Markov Chain and Hidden Markov Models

Q.No. 6: Gene Prediction Methods Principles.

Q.No. 7: Swiss Prot

Q.No. 8: Molecular Clocks

Q.No. 9: Model of a Biochemical Network

Q.No. 10: Hidden Markov Models

Q.No. 11: Protein Database Bank

Q.No. 12: Molecular File Formats

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 10(N)/07(O)	कोर्स शीर्षक:- (Course Title) Microbiology & Immunology	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Differentiate between prokaryotic and eukaryotic cells with help of suitable diagrams.

Q.No. 2: Describe different methods of sterilisation in microbiology with suitable examples.

Q.No. 3: Define antibiotics. Explain their mechanisms of actions and drug resistance.

Q.No. 4: Discuss metabolic diversity among microorganisms.

Q.No. 5: Explain the mode of action of any two different antibiotics.

Q.No. 6: Describe the stages in the growth of bacteria.

Q.No. 7: What is immunity? How immune response is induced? Write a note on innate and acquired immunity.

Q.No. 8 Explain the differences between prokaryotes and eukaryotes alongwith suitable example.

Q.No. 9 : What is Bacteriophage? Describe lytic cycle of Bacterio phage TA.

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q.No. 1 : Bacterial transduction.

Q.No. 2 : Differences between prokaryotic & eukaryotic cells.

Q.No. 3 : Drug resistance.

Q.No. 4 : AIDS

Q.No. 5 : Describe HIV-I and AIDS.

Q.No. 6 : Modern approaches to bacterial taxonomy.

Q.No. 7 : Write about microbial diseases with suitable examples. How are they cured?

Q.No. 8 : Role of Microbes in Ecosystem.

Q.No. 9 : Significance of Major Histocompatibility complex (MHC) in the immune response.

Q.No. 10 : Primary and Secondary Immune Response.

Q.No. 11 : Gram +ve and Gram -ve Bacteria.

Q.No. 12 : Food Borne Pathogens.

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 11(N)/08(O)	कोर्स शीर्षक:- (Course Title) Enzymology & Enzyme Technology	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe enzyme classification? What is EC number ? How would you interpret EC No. 2.7.1.1.

Q.No. 2: What is enzyme inhibition. Differentiate between competitive, non-competitive and uncompetitive enzyme inhibition.

Q.No. 3: Discuss the methodology and applications of enzyme immobilization.

Q.No. 4: What are enzymes? Describe the properties and specificity of enzyme.

Q.No. 5 Discuss enzyme Inhibition.

Q.No. 6 : Describe different enzymes of diagnostic significance in clinical significance.

Q.No. 7 : Define an enzyme. Write about bases of enzyme classification. Discuss different theories to explain functions of enzymes.

Q.No. 8: Discuss different properties of an enzyme. How different factors influence the activity of an enzyme?

Q.No. 9 : Define an isozyme. Discuss multienzyme complexes and their functions in cellular processes.

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q.No. 1 : Difference between coenzyme and cofactor.

Q.No. 2 : Feedback regulation and regulation by phosphorylation and dephosphorylation.

Q.No. 3 : Induced-fit hypothesis

Q.No. 4 : Allosteric enzymes.

Q.No. 5 : Define activity and active site of an enzyme. What is unit of an enzyme activity?

Q.No. 6 : Define enzyme immobilisation. Discuss its applications.

Q.No. 7 : Derive Michaelis-Menten equation and mention its applications.

Q.No. 6 : Mechanism of Enzyme Action.

Q.No. 7 : Essential trace elements as enzyme Co-factors.

Q.No. 8 : Induced Enzymes

Q.No. 9 : Turnover number.

Q.No. 10 : What are prosthetic group.

Q.No. 11 : What is denaturation? What are factors responsible for it?

Q.No. 12 : Describe competitive inhibition of enzymes. Give a suitable example of this type of enzyme inhibition.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय,इलाहाबाद

परास्नातक कार्यक्रम अधिन्यास सत्र

Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 12(N)/10(O)	कोर्स शीर्षक:- (Course Title) Basic Biotechnology	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe the Gene Expression in Prokaryotes

Q.No. 2 What is DNA- finger printing? Explain the process in detail.

Q.No. 3 : Describe different techniques used for sequencing DNA molecules.

Q.No. 4 : Enumerate the role of biotechnology in medicine.

Q.No. 5 : What is the difference between "Cell Line" "Cell Strain" and "Cell Type"

Q.No. 6 : Write in detail about various biotransformation reactions with suitable examples.

Q.No. 7 : Describe Xenobiotics. Explain the role of Environment biotechnology to overcome from Xenobiotics.

Q.No. 8 : Explain production of secondary metabolites with the help of plant cell culture. Give suitable example.

Q.No. 9 : Discuss in detail the role of medical biotechnology in disease diagnosis and drug development.

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q.No. 1 : Cloning Vectors

Q.No. 2 : GM Foods

Q.No. 3 : Role of Biotechnology in Pollution Control and Medicine.

Q.No. 4 : Transgenic Animals.

Q.No. 5 : What is the difference between “Population doubling” and passage number.

Q.No. 6 : Write a note on Cox-2 inhibitors.

Q.No. 7 : Explain the important applications of food biotechnology.

Q.No. 8 : Name a few immunochemical applications. Write a few lines about immunoblotting.

Q.No. 9 : Describe various classes of enzymes with suitable example.

Q.No. 10 : What do you understand by biotransformation?

Q.No. 11 : Contribution of biotechnology in food processing.

Q.No. 12: Enzyme bioreactors?

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

परास्नातक कार्यक्रम अधिन्यास सत्र

Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 13(N)/11(O)	कोर्स शीर्षक:- (Course Title) Industrial Biochemistry	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe the use of enzymes and micro- organisms in Industrial Biochemistry.

Q.No. 2 Give an account of production of wine, ethanol, beer and cheese in industry.

Q.No. 3 : Discuss gene expression in the generation of gene mediated, industrial/ Medical products.

Q.No. 4 : Explain the secondary structure in proteins.

Q.No. 5 : Write notes in :-

A. Protein sequencing

B. Classification of amino acids

Q.No. 6 : Describe the enzymatic steps in the biosynthesis of fatty acids.

Q.No. 7 : Describe structure activity relationship (SAR) at proteins. How does SAR helps in proteomic analysis?

Q.No. 8 : Discuss *de Novo* synthesis at Pyrimidine bases.

Q.No. 9 : Describe various mechanism at Drug and DNA interaction, and its application is drug discovery process.

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

- Q.No. 1 : Enzymes used in baking and pharmaceutical industry.
- Q.No. 2 : B-Oxidation at fatty acids.
- Q.No. 3 : Discuss Ed'man degradation of proteins.
- Q.No. 4 : Discuss Energetics of glycolysis.
- Q.No. 5 : Bacterial Growth Curve.
- Q.No. 6 : Production of Cyanocobalamine (Vitamin B₁₂)
- Q.No. 7 : Use of Micro-elements in Industrial Process.
- Q.No. 8 : Explain the salient features of Watson Crick Model of DNA.
- Q.No. 9 : Differentiate between starch, glycogen and cellulose.
- Q.No. 10 : Comment on protein folding.
- Q.No. 11 : Explain acid-base property of amino acids.

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 16(N)	कोर्स शीर्षक:- (Course Title) Cognitive Science and Human Behaviour	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe functional aspects of different regions of brain.

Q.No. 2: Describe biological cycle which helps in cognitive performance of an individual.

Q.No. 3: Discuss auditory perception and its relationship with human behavior.

Q.No. 4: Discuss importance of studying cognitive psychology.

Q.No. 5: Explain learning strategies leading to improvement of memory.

Q.No. 6: Differentiate between laboratory and field tests. Discuss their significance.

Q.No. 7: Explain Drugs and Cognitive performance

Q.No. 8: Judgment and decision

Q.No. 9: Explain Everyday Memory

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

- Q.No. 1 : Describe the Retrieval Cues
- Q.No. 2 : Cognitive function and brain
- Q.No. 3 : Metamemory
- Q.No. 4 : Conditioned reflex
- Q.No. 5 : Write a note on everyday memory.
- Q.No. 6 : Define cognitive failure.
- Q.No. 7 : Describe effect of drugs on cognitive functions.
- Q.No. 8: Dyslexia
- Q.No. 9: Working Memory and performance limitations
- Q.No. 10: Cognitive tools for Memory improvement
- Q.No. 11: Auditory perception
- Q.No. 12: Intuitive statistical

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 17(N)	कोर्स शीर्षक:— (Course Title) Clinical Biochemistry	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe important electrolytes and their biological functions. How does their importance lead to disease state?

Q.No. 2: Describe inborn errors of metabolism.

Q.No. 3 : What are biological buffers which help in acid base balance? Comment on utility of blood gas analysis in therapeutic management.

Q.No. 4 : Outline role of clinical biochemistry Laboratory analysis in assessment of health status of a human being.

Q.No. 5 : Describe role of polymerase chain reaction in diagnosis of diseases.

Q.No. 6 : Discuss terms precision, sensitivity and specificity in biochemical estimations giving examples.

Q.No. 7 : Describe important Endocrinology Chemistry Control

Q.No. 8 : Discuss Control of Calcium Metabolism

Q.No. 9 : Acid base balance and blood gases

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

- Q.No. 1: How do you differentiate between NIDDM and IDDM?
- Q.No. 2: Discuss liver functions tests and their importance.
- Q.No. 3: Enumerate proteins of the innate immune system and discuss their role in diagnosis.
- Q.No. 4: Importance of colorimetry in biochemical investigations
- Q.No. 5: Reference range
- Q.No. 6: Diseases resulting in malabsorption
- Q.No. 7: Role of micronutrients in diet.
- Q.No. 8: Immunoglobins
- Q.No. 9: Laboratory errors of metabolism
- Q.No. 10: Digestion
- Q.No. 11: Electrolyte Metabolism
- Q.No. 12: Plasma Proteins

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Post Graduate Science Programme

कोर्स कोड : Course Code: PGBCH- 18(N)	कोर्स शीर्षक:- (Course Title) Neuro Science	अधिकतम अंक : 30 Maximum Marks : 30
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खण्ड – 'अ'

Section 'A'

दीर्घ उत्तरीय प्रश्न

Long Answer Questions.

नोट : किन्हीं तीन प्रश्नों के उत्तर 800 से 1000 शब्दों में लिखें।

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.No. 1: Describe structure and function of various cells present in nervous system.

Q.No. 2: Discuss molecular processer involved in conduction of verve impulse.

Q.No. 3 : Describe inhibitory and excitatory neurotransmitters. Discuss their mechanism of action.

Q.No. 4 : Briefly discuss structural organization of central nervous system.

Q.No. 5 : Describe neuron diversity and discuss important features.

Q.No. 6 : Differentiate between sympathetic and parasympatheic nervous system.

Q.No. 7: Meninges and cerebrospinal fluid

Q.No. 8: Purines and peptides

Q.No. 9: Phototransduction

खण्ड – ब
Section - B
लघु उत्तरीय प्रश्न
Short Answer Questions.

अधिकतम अंक: 12
Maximum Marks: 12

नोट : किन्हीं चार प्रश्नों के उत्तर 200 से 300 शब्दों में लिखें।

Note: Write any four questions. Answer should be given in 200 to 300 Words.

Q.No. 1: Discuss importance of blood brain barrier.

Q.No. 2: Blood-brain barrier

Q.No. 3: Cerebrospinal fluid

Q.No. 4: Voltage dependent ion channels

Q.No. 5 : Describe composition of cerebrospinal fluid. How does it helps in disease diagnosis?

Q.No. 6 : Describe role of photo transduction in physiology of vision.

Q.No. 7 : Describe the Action potential generation

Q.No. 8: Olfactory receptor neurous

Q.No. 09: Schizophrenia; Depression

Q.No. 10: Alzheimer's disease

Q.No. 11: Neuroendocrine control of reproduction

Q.No. 12: Glial cells and myelination