उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-01**	(Course Title) **Cell Biology & Biomolecules**	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Sketch the prokaryotic and cukarytic cells Mention the salient differences between these two cells.

2- Writes notes of following:
(a) Endoplasmic reticulum: structure and function.
(b) Chleroplastes and their importance

3- Describe the structure and function of hemoglobin.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Define an Enzymes and enumerate their general properties

5- Explain structure of donable stranded DNA.

6- Sketch structure of t-RNA and describe its functions.

7- Explain changes in properties of DNA after denaturation

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-02**	(Course Title) **Analytical Biochemistry**	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- What is spectroscopy? Differentiate calorimetry from uv-visible spectra-photometry.

2- Describe the principle, instrumentation and applications of HPLC.

3- Write the principle of centfugation and various applications of different centrifuges.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Write about agrose gel electrophoresis and its applications.

5- What is isoelectric focusing? Write its applications.

6- Explain density gradient centrifugation and its significance.

7- Discuss gel filtration chromatography and its applications.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड : Course Code:**PGBCH-03 (N)/ 04 (O)**	कोर्स शीर्षकः– (Course Title) **Nutrition and physiology**	अधिकतम अंक : 30 Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Describe the nature, occurrence, structure and biological importance of vitamin A.

2- Discuss the significance of hormones of adrenal medulla.

3- Discuss the components of immune System

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Describe different types of viral vaccines.

5- Give an account of –Oxidation of fatty-acids.

6- Describe synaptic transmission.

7- Mechanism of action of cyclic AMP and the cascade effect.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

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

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Describe the mechanism of Oxidative Phosphorylation and ATP synthesis.

2- Explain the –Oxidation of fatty-acids.

3- Discuss the interrelationship of the EMP, HMP and ED pathways.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Describe the functions of transferases.

5- Describe the structure and properties of haemoglobin.

6- Discuss the biological importance of nucleic acids.

7- Describe the free energy changes in Oxidation- reduction reactions.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-06 (N)**	(Course Title) **Advance Immunology**	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Define Immunity. Differentiate innate immunity from acquired immunity with suitable example.

2- Describe MHC Class I and MHC class II proteins and their functions.

3- Differentiate cells for T-cell with suitable example.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Define antibodies mention the different classes and their functions.

5- Describe complement system and its role in immunity.

6- Define a vaccine and write about its different types.

7- What is hypersensitivity? How is it treated.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-07 (N)**	(Course Title) **Research Methodology**	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- What is research design? Also explain the significance of research?

2- Distinguish between the following:
   a) Random sampling & non-random sampling,
   b) Condense level & significance level,
   c) Point estimation & interval estimation,

3- What do you mean by the power of hypothesis test, How can it be measured?

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- 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_{29} Give the Tab =16.92

5- Give the ANOVA Table for two ways classified data also state the basic assumption for ANOVA and ANCOVA,

6- Discuss about the mann-cohithey V-lest,

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-08 (N)**	(Course Title) **Bio Statistics**	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Calculate standred deviation from the following data:

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

2- Calculate the value of correlation continent (Karl Pearson Correlation coettivent) form following data of two vadiables:

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

3- Discuss about the "Test of Goodness of fit"?

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Write short note on:
a) Degree of freedom.
b) Level of significance.
c) Type I and Type II error,

5- Discuss about the simple random sampling, also define its mean and variance.

6- Discuss about the normal distribution, also density its distribution.

7- Comparison of Chi-Square Test with Normal Test.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-09 (N)**	(Course Title) **Bioinformatic**s	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Discuss importance of bioinformatics studies in modern biology.

2- Classify biological databases.

3- Describe biological annotations and data curations.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Briefly describe the following :-
   (a) SCOP
   (b) BLAST
   (c) Molecular File Formats
   (d) Molecular Phylogency

5- Describe the resources of EMBL.

6- Explain the aim of bioinformatics and its scope.

7- Write a short note on National Center for Biotechnology Information (NCBI).

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड : Course Code:**PGBCH-10 (N)** **PGBCH-07 (O)**	कोर्स शीर्षकः– (Course Title) **Microbiology & Immunology**	अधिकतम अंक : 30 Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- What is immunity? How immune response is induced? Write a note on innate and acquired immunity.

2- Explain the differences between prokaryotes and eukaryotes alongwith suitable example.

3- What is Bacteriophage? Describe lytic cycle of Bacterio phage TA.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Write the role of Microbes in Ecosystem.

5- Explain the significance of Major Histocompatability complex (MHC) in the immune response.

6- Differenciate the following.
(a) Primary and Secondary Immune Response.
(b) Grame^{+ve} and Grame^{-ve} Bacteria.

7- Describe the Food Borne Pathogenes.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

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

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- What are enzymes? Describe the properties and sepceficity of enzyme.

2- Discuss the enzyme inhibition.

3- Describe different enzymes of diagnostic significance in clinical significance.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Carbonic Anhydrase.

5- Allosteric Enzymes.

6- Mechanism of Enzyme Action.

7- Essential trace elements as enzyme Co-factors.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड : Course Code:**PGBCH-12 (N)/ PGBCH-09 (O)**	कोर्स शीर्षकः– (Course Title) **Basic Biotechnology**	अधिकतम अंक : 30 Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Describe the Gene Expression in Prokaryotes.

2- What is DNA- finger printing? Explain the process in detail.

3- Describe different techniques used for sequencing DNA molecules.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Describe the Cloning Vectors.

5- Write a short not on GM Foods.

6- Role of Biotechnology in Pollution Central and Medicine.

7- Explain the transgenic Animals.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड : Course Code:**PGBCH-13 (N)/ PGBCH-11 (O)**	कोर्स शीर्षकः– (Course Title) **Industrial Biochemistry**	अधिकतम अंक : 30 Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Describe the use of enzymes and micro- organisms in Industrial Biochemistry.

2- Give an account of production of wine, ethanol, beer and cheese in industry.

3- Discuss gene expression in the generation of gene mediated, industrial/ Medical products.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Write a short not on Enzymes used in baking and pharmaceutical industry.

5- Describe the Bacterial Growth Curve.

6- Explain the Production of Cyanocobalamine (Vitamin B_{12}).

7- Write the use of Micro-elements in Industrial Process.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड : Course Code:**PGBCH-16 (N)/**	कोर्स शीर्षकः– (Course Title) **Cognitive Science and Human Behaviour**	अधिकतम अंक : 30 Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Describe functional aspects of different regions of brain.

2- Describe biological cycle which help in cognitive performance of an individual.

3- Discuss perception and its relationship with human behavior.

.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Write a note on everyday memory.

5- Define cognitive failure.

6- Describe effect of drugs on cognitive functions.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-17 (N)**	(Course Title) **Clinical Biochemistry**	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Describe important electrolytes and their biological functions. How does their importance lead to disease state?

2- Describe inborn errors of metabolism.

3- What are biological buffers which help in acid base balance? Comment of utility of blood gas analysis in therapeutic management.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- How do you differentiate between NIDDM and IDDM?

5- Discuss liver functions tests and their importance.

6- Enumerate proteins of the innate immune system and discuss their role in diagnosis.

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, प्रयागराज

विज्ञान (परास्नातक) कार्यक्रम अधिन्यास सत्र 2019–20

कोर्स कोड :	कोर्स शीर्षकः–	अधिकतम अंक : 30
Course Code:**PGBCH-18 (N)**	(Course Title) **Neuro Science**	Maximum **Marks : 30**

Section 'A'

Long Answer Questions.

Note: Attempt all Questions. Each question should be answered in 800 to 1000 Words.

Maximum Marks: 18

1- Describe the structure and function of various cells present in nervous system.

2- Discuss molecular processer involved in conduction of nerve impulse.

3- Describe the inhibitory and excitatory neurotransmitters. Discuss their mechanism of action.

Section - B

Short Answer Questions.

Note: Attempt All Questions. Answer should be given in 200 to 300 Words.

Maximum Marks: 12

4- Discuss the importance of blood brain barrier.

5- Describe the composition of cerebrospinal fluid. How does it helps in disease diagnosis?

6- Describe the role of photo transduction in physiology of vision.

7- Describe the Anatomy and physiology of the ear.