

Total No. of Questions : 09

Total No. of Pages : 02

B.Sc.(BT) (Sem.-1)

BASICS OF BIOSCIENCES

Subject Code : BSBT-107-18

M.Code : 753330

Date of Examination : 20-06-2024

Time : 3 Hrs.

Max. Marks : 30

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying $2\frac{1}{2}$ (Two and Half) marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying FIVE marks each and students has to attempt any TWO questions.

SECTION-A

1. Answer briefly :
- (a) Binomial nomenclature
 - (b) Essential amino acids
 - (c) Interphase
 - (d) Role of Flagella in Bacteria
 - (e) Thermoacidophiles
- (f) Syngamy
- (g) Smallest living prokaryotes
- (h) Function of palisade parenchyma
- (i) Cytokinesis
- (j) Saturated fatty acids.

SECTION-B

2. Explain the economic importance of Bacteria and its role in Agriculture and Industry.
3. Describe Placentation. Explain its different types.
4. Draw the structure of neuron and describe the function of each part.
5. Distinguish between the Prokaryotic and Eukaryotic cells.
6. Describe the classification of carbohydrates as monosaccharides, disaccharides and polysaccharides.

SECTION-C

7. Explain the differences in reproductive structures, fertilization processes and mechanisms between gymnosperms and angiosperms.
8. Describe the structural - organization of animal tissues, including Epithelial, Connective and Muscular tissues along with the characteristics and functions.
9. Describe the function of Cell Organelles, Endoplasmic Reticulum (ER), Golgi Apparatus, Mitochondria and Lysosomes.



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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (BT) (2018 Batch) (Sem.-1)

Subject Code : BSBT-101-18

M.Code : 75324

Date of Examination : 07-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly:

- What do you mean by Paramagnetism?
- What do you mean by covalent bond?
- What is Valence bond theory?
- Define the Hydrogen bonding.
- What do you mean by geometrical isomers?
- Define the electro neutrality.
- Define the Vander wall forces.
- Define the Coordination bond.
- Explain the hybridization in PF_6 .
- Define the hybridization.

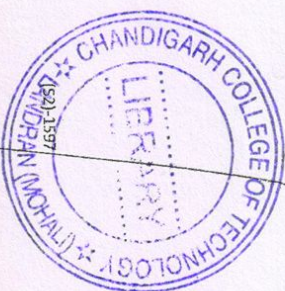
SECTION-B

2. Explain the directional characteristics of covalent bonds.
3. Explain the hybridization of IF_7 , BF_3 .
4. Explain the optical isomers.
5. What do you mean by effective nuclear charge?
6. Explain the back bonding.

SECTION-C

7. Explain Werner's coordination theory.
8. Explain the limitations of Valence bond theory.
9. Explain the Crystal field theory.

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Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
Total No. of Questions : 11

Total No. of Pages : 04

B.Voc. (Child Caregiver)/B.A. (JAMC)/BBA/BBA (SIM)/B.Com (Honours)/
BCA/BHMT (UGC)/B.Sc. - Honours (Nutrition and Dietetics)/B.Sc.
(AI&ML)/B.Sc. (Bio Technology)/B.Sc. (Fashion Design)/B.Sc. (Graphics
& Web Designing)/B.Sc. (IT)/B.Sc. (Medical Lab Sciences)/B.Sc.
(Operation Theatre Technology)/B.Sc. (Radiotherapy Technology)/

BTM (Sem-1)

HUMAN VALUES, DE-ADDICTION AND TRAFFIC RULES

Subject Code : HYPE-101-18

M.Code : 93322

Date of Examination : 24-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Section-A is compulsory.
3. Section-B contains five questions of four marks each. Attempt all.
4. Section-C contains five questions of six marks each. Attempt all.

SECTION-A

(10 × 1 = 10)

1. Write briefly :

- i) What is Utility-Value?
उपयोगिता-मूल्य क्या है?
ऐपकोविता-यूल वै है?
- ii) Explain Natural Acceptance.
सहज स्वीकृति समझाओ।
'ह्रस्वतडी मनुवी भाषाटि।
- iii) How the value "care" is related with body?
मूल्य "स्वाभ" शरीर के साथ कैसे संबंधित है?
यूल फिआन सरीर के ठाल बिहै संबंध है?
- iv) What do you mean by Respect?
आपका सम्मान से क्या मतलब है?
हुराज्ता भस्वत डै वी भस्वत है?

[M-93322]



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v) What is Perseverance?
अटलता क्या है?

धीरम वी है?

vi) What is the difference between prosperity and wealth?
समृद्धि और धन के बीच क्या अंतर है?

धूमराडी अडे अमीरी के बिंच वी अंडर है?

vii) What is Holistic System?
समग्र प्रणाली क्या है?

सर्वद्वैमिब पूराडी वी है?

viii) What is Cyclic Production?
चक्रीय उत्पादन क्या है?

चकरी उत्पादन वी है?

ix) What is Existence?
अस्तित्व क्या है?

अस्तित्व वी है?

x) What is value of any Unit in the larger order?
बड़े आदेश में किसी भी इकाई का क्या मूल्य है?

बड़े आदेश बिंच बिसे वी बिवासी द्वा वी यूल है?

SECTION-B

(5 × 4 = 20)

2. What is the need for value education in technical and other professional Institutions?
तकनीकी एवं अन्य व्यावसायिक संस्थानों में मूल्यपरक शिक्षा की क्या आवश्यकता है?

उकनीकी अडे रीर पेमेवत मसवादा बिंच यूल टी सिफिआ टी वी लूज है?

3. Self-exploration is a process of dialogue between 'What you are' and 'What you really want to be. Explain and illustrate.

आत्म-अन्वेषण 'आप क्या हैं' आप वास्तव में क्या बनना चाहते हैं' में आपस संवाद की एक प्रक्रिया है। समझाओ और व्याख्या करो।

सहै-धेन 'हमी वी है' अडे 'हमी आगल बिंच वी घटन चहुंटे है' बिंच आपस भस्वत टी बिंच प्रबिआ है। भाषाटि अडे बिआधिआ वरी।

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**B.Sc.(BT) (Sem.-1)
INTRODUCTION TO BIOTECHNOLOGY**

Subject Code : BSBT-102-18

M.Code : 75325

Date of Examination : 14-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Define :

- i) What are Biopharmaceuticals?
- ii) List names of GM foods.
- iii) What are Fermenters?
- iv) List some microbes involved in Fermentation.
- v) What are Pre - Processed foods?
- vi) What is Marine BioTechnology?
- vii) List names of Yeast and Bacteria involved in Food Processing.
- viii) Cite some examples of Commercially approved GM crops.
- ix) What is Downstream Processing?
- x) List some names of Biotech Companies in India.

SECTION-B

2. Write a note on Biotech Success stories in India.
3. Differentiate between Traditional and Modern Biotechnology.
4. Write a note on GM foods.
5. What are BT Crops? Explain their significance.
6. Discuss role of Microbes in Food Quality Enhancement.

SECTION-C

7. Elaborate on Industrial Production of Antibiotics and Enzymes.
8. Write a note on Yeast and Bacterial Based Food Products and Processes.
9. Discuss the process for industrial production of Chemicals.

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B.Com.(Hons.)/BA(JAMC)/ BHMCT/B.Sc.(Hons.)(Nutrition and Dietetics)/(AI & ML)/(BT)/(FD)(G&WD)/(IT)/(MLS)/ B.Voc. (Beauty Therapy and Aesthetics)/BTMT/BBA(SIM)/BCA(Sem.-1)

ENGLISH

Subject Code : BTHU103-18

M.Code : 75085

Date of Examination : 15-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. All questions are **COMPULSORY**.
2. Q1, Q2 and Q3 carry **TEN** marks each.
3. Q4 and Q5 carry **FIFTEEN** marks each.

1. What do you mean by Communication? Discuss in detail, the types of Communication.
2. Explain in detail the barriers to communication. Also, suggest the ways to overcome these barriers.

3. Paraphrase the following:

The proliferation of smartphones have revolutionized the way people communicate and access information. With the advent of mobile technology, individuals can now connect with others instantly, regardless of their location. Smartphones serve as multifunctional devices, providing access to social media platforms, email, web browsing, and countless apps for entertainment and productivity. As a result, people have become increasingly reliant on their smartphones for daily tasks and communication, blurring the lines between work and leisure.

4. On the basis of your reading of the following paragraph, answer the questions:

The melting of polar ice caps due to global warming poses significant threats to both wildlife and human populations inhabiting coastal regions. As polar ice melts, sea levels rise, increasing the risk of flooding in low-lying areas and displacing communities. Furthermore, the loss of sea ice deprives species such as polar bears and seals of crucial habitat, leading to declines in their populations and disrupting entire marine ecosystems. Additionally, the influx of freshwater from melting ice alters ocean currents and salinity levels, affecting global climate patterns and exacerbating extreme weather events. Addressing the melting polar ice caps requires urgent action to mitigate greenhouse gas emissions, promote sustainable energy sources, and implement adaptation strategies for vulnerable communities.

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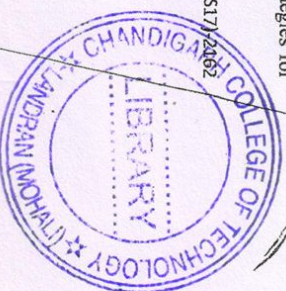
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Answer the questions:

- i) What are the primary threats posed by the melting of polar ice caps to both wildlife and human populations?
 - ii) How does the loss of sea ice impact marine ecosystems?
 - iii) What are some of the broader consequences of melting polar ice caps on global climate patterns and weather?
 - iv) What actions are suggested to address the issue of melting polar ice caps and its associated impacts?
- v) **Write the meaning of the words:** depletes and exacerbating.
5. Write a report on the impact of urbanization on local ecosystems.

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Total No. of Questions : 09

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**B.Sc.(BT) (Sem.-1)
BIOCHEMISTRY AND METABOLISM**

Subject Code : BSBT-103-18

M.Code : 75326

Date of Examination : 18-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

- i) Oligosaccharides
- ii) Prostacyclins
- iii) Purines and Pyrimidines
- iv) Activation energy
- v) Glycoproteins
- vi) Gluconeogenesis
- vii) Oligomeric enzymes
- viii) Cerebrosides
- ix) Isomerases
- x) Aliphatic and Aromatic aminoacids.

SECTION-B

2. Discuss properties of Polysaccharides.
 3. What are the types of Proteins? How are Proteins classified?
 4. Discuss structure and function of Cholesterol.
 5. What are common and important features of Enzyme Active site?
 6. Discuss fate of Pyruvate under Anaerobic conditions.
- SECTION-C**
7. What is Oxidative Phosphorylation? Discuss its significance and the steps involved.
 8. Discuss significance of Gluconeogenesis and the steps of the pathway.
 9. Discuss classification, nomenclature and properties of fatty acids.



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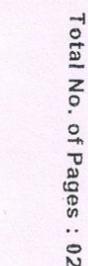
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B.Sc. (BT) (Sem.-2)

Subject Code : BSBT-203-18

M.Code : 75874

Date of Examination : 15-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :
- What are the advantages of Tabular representation of data?
 - How simultaneous equations can be solved by Matrices.
 - Define method of averages.
 - What do you understand by rejection of observations?
 - Define Null Hypothesis and Alternate Hypothesis.
 - What is the significance of curve smoothing?
 - What do you mean by Relative Frequency?
 - Give merits and limitations of polynomial fitting.
 - Give properties of Determinants.
- j) Three bags contain 3 red, 7 black; 8 red, 2 black, and 4 red & 6 black balls respectively, 1 of the bags is selected at random and a ball is drawn from it. If the ball drawn is red, find the probability that it is drawn from the third bag.

SECTION-B

2. Calculate the value of mean and standard deviation from the following frequency distribution.

Variable	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	16	20	23	46	8	3

3. Describe various methods of numerical integration.
4. Write a detailed note on Fourier transformation.
5. Find the matrix inverse of $\begin{bmatrix} 4 & -2 & 1 \\ 5 & 0 & 3 \\ -1 & 2 & 6 \end{bmatrix}$
6. Explain Analysis of variance for one and two-way classification.

SECTION-C

7. a) Write a note on graphical representation of data.
- b) There are two series of index numbers P for price index and S for stock of 05 the commodity. The mean and standard deviation of P are 100 and 8 and of S are 103 and 4 respectively. The correlation coefficient between the two series is 0.4. With these data obtain the regression lines of P on S and S on P.
8. Write notes on :
 - (a) Method of Least Squares
 - (b) Completely randomized and randomized block designs.
9. a) How do you evaluate 3×3 determinant?
- b) What are the different methods and uses of Interpolation?

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B. Com (Hons/BA/JAMC)/BHMCT/B.Sc.BT/BD/MLS/BBA(SIM)/BTM
(Sem.-2)

ENVIRONMENTAL STUDIES

Subject Code : EVS/102/18

M.Code : 75831

Date of Examination : 21-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Attempt ALL questions in SECTION-A. Each question carries 2 marks.
2. Attempt any FOUR questions from SECTION-B out of SIX. Each question carries TEN marks.

SECTION-A

1. Write briefly :

- a) Public Awareness
- b) Cyclones
- c) Ecological Pyramids
- d) Forest Ecosystem
- e) Reason of deforestation
- f) Air pollution
- g) Global warming
- h) Causes of Natural disaster
- i) Causes of floods
- j) Sources of Noise pollution.

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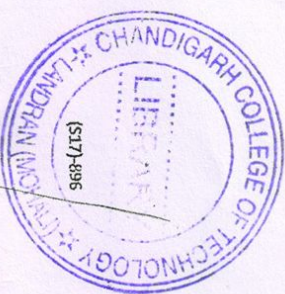
SECTION-B

2. Discuss the type's causes and effects of Air pollution.
3. Explain the various types of Bio-diversity.
4. Discuss the inter-disciplinary nature of Environmental studies.
5. Explain the link between Environment and Human.
6. Discuss in detail "India as a Mega Diversity Nation".
7. Write a short note on Forest Conservation Act.

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June-2024

Total No. of Questions : 09

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B.Sc. (Multimedia) (Sem.-2)
COMMUNICATION SKILL

Subject Code : AMT/207

M.Code : 14009

Date of Examination : 08-05-2024

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTION TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. SECTION-C contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Answer briefly :
 - a) List important components of communication.
 - b) What are salient features of effective communication?
 - c) Write a note on listening skills.
 - d) What are the features of a good resume?
 - e) Define an effective business message.
 - f) What are salient features of a report?
 - g) Differentiate between a long and a short report.
 - h) "*Punctuation is important*". Explain with an example.
 - i) Briefly explain the role of style in communication.
 - j) Discuss essential steps in reading skills.

SECTION-B

2. Discuss different types of reports.
 3. Elaborate strategies for improving oral presentation.
 4. How to prepare for interviews? Discuss.
 5. How do we plan and write documents?
 6. Give in detail the importance of communication in professional life.
- SECTION-C**
7. Discuss various barriers to communication.
 8. Write a business letter asking a firm to give rates of certain computer items required by your company. Imagine details.
 9. Draft an application along with resume for the post of a manager in an organization. Invent relevant details.

SECTION-C

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June - 2024

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Sc. (BT) (Sem.-2)
INTRODUCTION TO MICROBIOLOGY**

Subject Code : BSBT/202/18

M.Code : 75873

Date of Examination : 11-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

- a) Define resolving power.
- b) Explain principle of Gram's staining.
- c) How steadily state is established in a continuous culture?
- d) Discuss morphological characteristics of algae and fungi.
- e) What is spontaneous generation theory and how was it disproved?
- f) Difference between sterilization and disinfection.
- g) Explain briefly "functions of bacterial cell wall.
- h) Explain applications of fluorescence microscopy.
- i) Define synchronous growth.
- j) Discuss relationship between germ theory of fermentation and germ theory of disease.

SECTION -B

2. Define generation time. Derive an expression for calculating specific growth rate and generation time of a bacterial population.
3. Discuss the various methods of sterilization.
4. Explain the morphology and structure of bacterial cell with the aid of a neatly labelled diagram.
5. Discuss the contribution of Louis Pasteur and Robert Koch in the development of microbiology.
6. Discuss the diseases caused by bacterial pathogens.

SECTION-C

7. How do nitrogen-fixing microbes establish symbiotic relationship with plants, and what are the benefits of these interactions for both the microbes and plants?
8. Write a working principle and applications of :
 - a) Phase contrast microscopy.
 - b) Dark field microscopy.
9. Discuss the microbial classification of fungi.

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Total No. of Pages : 02

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**B.Sc. (BT) (Sem.-3)
INTRODUCTION TO COMPUTERS**

Subject Code : BSBT-307-18

M.Code : 76614

Date of Examination : 19-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

- a) Digital Computer
- b) Software
- c) Algorithm
- d) CU
- e) RAM
- f) Floppy vs HDD
- g) Light pen
- h) Dot Matrix Printer
- i) Sequence alignment
- j) Mouse.

SECTION-B

2. Explain the block diagram of computer.
3. Write a note on functional units and their interrelation.
4. Differentiate between primary storage and secondary storage.
5. Describe any 3 output devices.
6. What is GCG? Explain sequence analysis using GCG.
7. Write a detailed note on sequence alignment and database searching.
8. Discuss with help of a diagram any 4 output devices.
9. Diagrammatically explain the concept of memory hierarchy.

SECTION-C

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Total No. of Questions : 09

B.Sc. (BT) (Sem.-3)
MOLECULAR BIOLOGY
Subject Code : BSBT/303/18

M.Code : 76610

Date of Examination : 15-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- (a) What are introns?
- (b) What is genetic code?
- (c) Explain the elongation step of replication.
- (d) Write a short note on spontaneous mutation.
- (e) What is central dogma of molecular biology?
- (f) Write a short note on amino acid activation.
- (g) Write a short note on regulation of lactose operon.
- (h) What is photoreactivation?
- (i) What is DNA replication?
- (j) Physical and chemical mutagens.

SECTION-B

2. What is the purpose of DNA replication in cells? Describe the semi-conservative model of DNA replication.
3. Describe the process of transcription, including the role of RNA polymerase.
4. Explain the concept of genome organization including the role of histone and non-histone proteins.
5. What do you mean by DNA repair? Give different types of DNA repair mechanism.
6. Explain the positive and negative regulation of lac operon.

SECTION-C

7. Explain the concept of mutations. How do they contribute to genetic diversity in population and give some genetic disorders caused by mutations?
8. Describe the structure and components of lac operon. How does it function and regulated in bacteria?
9. What is translation, where does it occur in cell? What are key steps of translation and what happen during each step?

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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (BT) (Sem.-3)

IMMUNOLOGY

Subject Code : BSBT-302-18

M.Code : 76609

Date of Examination : 13-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. SECTION-C contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Write briefly :

- (a) Specific immune response
- (b) Monocytes
- (c) Paratope
- (d) Antibody Diversity
- (e) Complement fixing antibodies
- (f) IgM
- (g) MALT
- (h) T-cell subsets
- (i) Antibody
- (j) Humoral Immunity.

SECTION-B

2. What is Non-Specific immunity and how it is developed in the body?
 3. Draw diagram and discuss role of thymus as organ of immune system.
 4. Discuss molecular mechanism of antibody generation.
 5. Describe mechanism of recognition of antigen by T cells.
 6. Discuss major milestones in immunology.
- SECTION-C**
7. Discuss in detail structure and function of Secondary lymphoid organs.
 8. What are Immunoglobulins? Draw structure of IgE and IgA. Also, explain their functions.
 9. Discuss structure and function of T cell antigen receptors.

SECTION-C

7. Discuss in detail structure and function of Secondary lymphoid organs.
8. What are Immunoglobulins? Draw structure of IgE and IgA. Also, explain their functions.
9. Discuss structure and function of T cell antigen receptors.

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June-2024

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (BT) (Sem.-3)

ORGANIC CHEMISTRY

M.Code : 76608

Date of Examination : 11-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :
 - a) What do you mean by Inductive effect?
 - b) What do you mean by carbocation?
 - c) Explain two physical properties of alcohols.
 - d) Define the Dienes.
 - e) What do you mean by Kekule structure?
 - f) Difference between the singlet and triplet carbene.
 - g) Define the electrophile.
 - h) Define the Hyperconjugation.
 - i) Explain the Reimer Tiemann reaction.
 - j) Define the Resonance.

SECTION-B

2. Explain the acidity of alcohol.
 3. Explain the stability of carbocations.
 4. Explain the mechanism of Kolbe's reaction.
 5. What do you mean by conformation of alkenes?
 6. Difference between electrophile and nucleophile.
- SECTION-C**
7. Explain types of organic reagents.
 8. Explain the methods of formation of cycloalkanes.
 9. Explain the structure of benzene.

SECTION-C

7. Explain types of organic reagents.
8. Explain the methods of formation of cycloalkanes.
9. Explain the structure of benzene.

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June-2024

Total No. of Pages : 02

B.Sc. (BT) (Sem.-4)

ANALYTICAL TECHNIQUES IN BIOTECHNOLOGY

Subject Code : BSBT407-18

M.Code : 77696

Date of Examination : 17-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :
 - a) What is ion exchange chromatography?
 - b) What is capillary electrophoresis?
 - c) What is preparative centrifugation?
 - d) What is dark field microscopy?
 - e) Define electrophoretic mobility.
 - f) Define chromophore.
 - g) What is sedimentation coefficient?
 - h) Define K_f value.
 - i) What is Western blotting used for?
 - j) Define molecular polarizability.

SECTION-B

2. Describe the technique of GLC.
3. Discuss Raman spectra of a linear molecule.
4. Write a note on ultracentrifugation.
5. Describe two-dimensional gel electrophoresis.
6. Explain Beer-Lambert law. Discuss principle and applications of absorption spectroscopy.

SECTION-C

7. Describe the principle and applications of nuclear magnetic resonance spectroscopy.
8. Discuss chromatographic techniques used in protein purification.
9. Write a note on :
 - a) PAGE
 - b) SEM.



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June-2024

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Sc. (Biotechnology) (Sem.-4)
INDUSTRIAL BIOTECHNOLOGY**

Subject Code : BSBT/403/18

M. Code : 77692

Date of Examination : 14-05-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a. Role of carrier in Biofertilizers
- b. Biosafety levels and their significance
- c. Biohazards
- d. Entrapment
- e. Biocatalysis
- f. Biotransformation
- g. VVM
- h. Role of Baffles in bioreactor
- i. Cryogenic Preservation of cultures
- j. Hops.

SECTION-B

2. Describe the role of yeast in industry.
3. Differentiate between beer and wine.
4. Discuss about the key components required for the preparation of growth media.
5. Discuss the function of fringes generator with the help of diagram for microbial production of acetic acid.
6. How bio-fertilizers are better than chemical fertilizers?

SECTION-C

7. Define transformation. Discuss various procedures for yeast transformation.
8. Describe the construction of fermenter with the help of diagrams.
9. Describe the up-streaming and down-streaming process for the production of citric acid.

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June-2024

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

B.Sc (G&WD) (Sem.-5)

LIGHTING AND RENDERING

Subject Code : UGWD1914

M.Code : 90378

Date of Examination : 18-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

- a) What are the primary properties of light in CG rendering?
- b) Define Maya shaders.
- c) List the common types of lights used in CG rendering.
- d) Define the term "Decay rate" in the context of spotlights.
- e) What is the significance of resolution settings in rendering?
- f) What is a three-point light setup in CG?
- g) What is the significance of render quality settings in CG rendering?
- h) What is Global Illumination in rendering?
- i) What is "Caustics" in rendering?
- j) Define "Image Based Lighting" and its significance.

SECTION-B

2. Discuss the importance of shader properties such as ambient, diffuse, and specular in creating realistic CG renders.
3. Explain the importance of depth maps and ray-traced shadows in CG lighting setups, considering their impact on scene accuracy and render times.
4. What are the essential requirements for rendering an image and also explain the steps involved in it?
5. Compare natural and artificial lighting in CG, highlighting their differences and suitability for different scenarios.
6. How would you differentiate between reflection and refraction? Describe the methods for sampling in rendering.
7. Discuss the role of frame range and camera settings in improving rendering quality.

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June-2024

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc (Bio Technology) (Sem.-5)

RENEWABLE ENERGY RESOURCES

Subject Code : BSBT-138/18

M.Code : 78349

Date of Examination : 14-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly :**
 - a) What environmental benefits does solar energy offer?
 - b) What are the advantages of concentrating collectors?
 - c) Compose the Sunshine Recorder principle.
 - d) What benefits do mini and micro hydro resources offer?
 - e) What are the main drawbacks of wind energy?
 - f) Define the principle of energy conservation.
 - g) How a biogas digester's gas production is quantified?
 - h) Define solar cells.
 - i) Compare and contrast different types of tides.
 - j) Write about different types of wave energy systems.

SECTION-B

2. Describe the solar photovoltaic power generation principle. Talk about how solar PV is used in today's society as well?
3. Discuss the advantages of improved cooking stoves compared to traditional cooking stoves.
4. Explain the fundamental ideas underlying the conversion of wind energy. How is wind energy transformed from kinetic to electrical energy?
5. Clarify the principle operations of OTEC power plant and give the status of OTEC plants in India.
6. Which are the most important design factors for mini-hydropower plants? Write the primary disadvantage of mini-hydropower plants as well.

SECTION-C

7. Discuss the different types of solar collectors, such as flat-plate collectors, evacuated tube collectors, and concentrating collectors. What are the distinguishing features and applications of each type?
8. What does the term "energy conservation" mean? Describe the connection between environmental sustainability and the protection of natural resources and energy conservation.
9. Geothermal resource definition. Describe the many designs of geothermal wells that are used to get energy from the earth.

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June-2024

Total No. of Pages : 02

B.Sc. (Bio Technology) (Sem-6)
DEVELOPMENTAL BIOLOGY
Subject Code : BSBT147/18

M.Code : 79458

Date of Examination : 29-04-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. SECTION-B contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. SECTION-C contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Write briefly :
 - a) Gametogenesis
 - b) Tertiary embryonic induction
 - c) Organogenesis
 - d) Neural induction
 - e) Epiboly
 - f) Holoblastic cleavage
 - g) De-lamination
 - h) Types of eggs
 - i) Notogenesis
 - j) Implantation.

SECTION-B

2. Differentiate between holoblastic and meroblastic cleavages.
3. Write a note on development of vertebrate eye.
4. Discuss briefly about organized embryo sac with diagram.
5. Describe mechanism of blastulation. Also enlist its types.
6. Give a short note on various types of fertilization.

SECTION-C

7. Illustrate the stages of spermatogenesis with the help of diagram.
8. What are the different types of morphogenetic processes involved in development of organs?
9. Write a detailed note on types of embryonic induction.



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June-2024-24

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (Bio Technology) (Sem.-6)

BIOINFORMATICS

Subject Code : BSBT149-18

M.Code : 79460

Date of Examination : 04-05-2024

Time : 3 Hrs.

Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE marks each.
2. SECTION-B contains FIVE questions carrying TWO AND A HALF marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Limitations of bioinformatics.
- b) Protein databases
- c) Similarity in sequence alignment
- d) Proteomics
- e) Phylogeny
- f) Tools used for structure visualization
- g) e-value of alignment scores
- h) UPGMA
- i) Significance of sequence alignment
- j) Genomics.

SECTION-B

2. Differentiate between local and global alignment.
3. What is BLAST? Give the different types of BLAST.
4. Write a note on genome annotation tools.
5. Discuss Needleman-Wunsch algorithm.
6. Write a note on protein databases with special emphasis on protein data bank.

SECTION-C

7. Discuss in detail / various programs used in heuristic method of sequence alignment.
8. What is homology modeling? Describe various steps involved in modeling of protein by this.
9. Write a detailed note on docking.



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June-2024

Total No. of Pages : 02

Roll No. _____
Total No. of Questions : 09

B.Sc. (BT) (Sem.-6)

TECHNICAL WRITING

Subject Code : BSBT/601/18
U Code : 79456

M-Code : 79456

Date of Examination : 25-04-2024

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) What is the difference between technical writing and routine writing?
- b) How do we write a definition?
- c) What points should we keep in mind while analyzing material?
- d) What points should we keep in mind while describing any process?
- e) What are secondary sources?
- f) What is a final draft?
- g) What are professional ethics?
- h) Elaborate one technical writing style.
- i) What is a research report?
- j) List two important points for preparing notes.

SECTION-B

2. Elaborate different ways of collecting material.
 3. How do we revise a paper?
 4. Discuss writing rough drafts.
 5. Discuss various library resources and how to utilize these?
 6. Elaborate proposal writing.
- SECTION-C**
7. Elaborate how do we describe mechanisms?
 8. Write an application for the post of a Supervisor in a reputed company. Draft your resume. Imagine all details.
 9. Discuss plagiarism in detail.

SECTION-C

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June-2024

Roll No.
Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. (Bio Technology) (Sem.-6)
PLANT BIOTECHNOLOGY
Subject Code : BSBT151-18
M.Code : 79462
Date of Examination : 16-05-2024

Time : 3 Hrs.

Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying TWO and HALF marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Define the following :

- a) Callus
- b) Totipotent
- c) Hydrogenase
- d) Chromosome doubling
- e) Embryonic stem cell
- f) Suspension culture
- g) Nodulation
- h) Ovary culture
- i) Protoplast
- j) Embryo.

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SECTION-B

2. What do you understand by organogenesis? Give detail.
3. How haploids are produced in cereals?
4. Describe identification and selection of hybrid cells.
5. Write a short note on nitrogen fixation.
6. Discuss about protoplast fusion.
7. Write short notes on embryogenesis and micropropagation.
8. What are the steps involved in anther culture? Explain in detail.
9. Give an account of somaclonal variation. Give its application.

SECTION-C

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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June-2024

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Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. (B.T) (Sem.-6)
BIOTECHNOLOGY AND HUMAN WELFARE

Subject Code : BSBT14B/18

M.Code : 79459

Date of Examination : 30-04-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Name any two recombinant live vaccines.
- b) Define PHB.
- c) Define Protein engineering.
- d) Name substances used for production of industrial alcohol.
- e) Define Immunogenicity.
- f) Define Electroporation.
- g) Uses of enzymes in food industry.
- h) Define Germ line gene therapy.
- i) Define site directed mutagenesis
- j) Name any two anti-biotic producing bacteria.

SECTION-B

2. Discuss the process of nitrogen fixation with microflora involved and give importance of nitrogen fixation.
3. Discuss briefly degradation pathway of non-chlorinated organic pollutants.
4. Discuss preparation of any one recombinant live vaccine.
5. Discuss the role of forensic science in solving violent crimes.
6. Discuss one biotechnological method for improvement of livestock.

SECTION-C

7. Discuss the method of integrating pest resistance genes into plants citing one example.
8. Discuss the development of PHB.
9. Write short notes on the following :
 - a) Applications of Monoclonal antibodies
 - b) Human Genome Project.

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Roll No.
Total No. of Questions : 09

Total No. of Pages : 02

**B.Sc. (BT) (Sem-6)
ENVIRONMENT BIOTECHNOLOGY**

Subject Code : BSBT-150-18

M.Code : 79461

Date of Examination : 07-05-2024

Time: 3 Hrs.

Max. Marks: 40

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying 2½ (Two and Half) marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

1. Answer briefly:

- i. Define phyto-remediation.
- ii. Enlist harmful effects of chlorinated hydrocarbons.
- iii. Give examples of lignin degrading microorganisms.
- iv. What do you understand by symbiotic nitrogen fixation?
- v. Give composition of biogas.
- vi. What are algal biofertilizers?
- vii. Name important ores of gold.
- viii. Compare conventional and modern fuels.
- ix. What is the environmental significance of plants?
- x. What is municipal waste? Give its composition.

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SECTION-B

2. Write a short note on the microbial remediation of heavy metal ions.
3. What are Biofertilizers? Explain their microbial production and role in environment sustainability.
4. What are Conventional Fuels? How do they differ from modern day fuels? Give examples.
5. Discuss the important methods of producing gasohol from sugars.
6. Define the term Biobleaching. Give methods of extracting gold from its respective ore.

SECTION-C

7. Give a detailed account of microbial degradation of hydrocarbons and oil spills.
8. Explain various methods of treating industrial effluents.
9. What are Biofuels? Explain biochemistry and microbiology of biogas production.



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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (BT) (Sem.-6)

MEDICAL MICROBIOLOGY

M.Code : 79463

Date of Examination : 14-05-2024

Time : 3 Hrs.

Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying TWO & HALF marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

- a) What is a septic shock?
- b) What are enterotoxins?
- c) What is food-borne intoxication?
- d) Which is the causative agent of pneumonia?
- e) Define vaccination.
- f) What is systemic infection?
- g) Which is the causative agent of dermatophytosis?
- h) What is the role of probiotics in maintaining gut health?
- i) Which chemotherapeutic agents are administered against *S. aureus* infections?
- j) Describe the characteristics of rhinoviruses.

SECTION-B

- How can blood-borne infections be detected?
- Describe the infection caused by *Cryptococcus*.
- Which disease is caused by the following :
 - N. Gonorrhoea*
 - S. Typhi*
 - S. dysenteriae*
 - S. pyogenes*
 - C. perfringens*
- What are mycoloxins?
- Write a note on pathogenesis and control of retroviruses.

SECTION-C

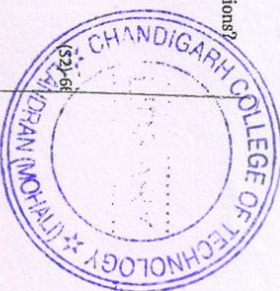
7. Discuss host defense mechanism against invading pathogens.
8. Describe symptoms, treatment and control of protozoal infections.
9. Write short notes on :
 - a) Anthrax
 - b) Candidiasis

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June-2024

Total No. of Questions : 05

Total No. of Pages : 01

**B.Com. Hons./B.Sc.(Hons.)N&D/B.Sc.(AI&ML)/
BT/FD/G&WD/IT/MLS/B.Voc. (Beauty Therapy and
Asthetics)/BTTM/BBA(SIM)/BBA
BAJMC/BHMCT/BCA (Sem.-1)**

ENGLISH

Subject Code : BTHU103-18

M.Code : 75085

Date of Examination : 04-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. All questions are **COMPULSORY**.
2. Q1, Q2 and Q3 carry **TEN** marks each.
3. Q4 and Q5 carry **FIFTEEN** marks each.

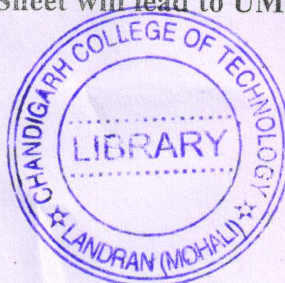
1. What is Communication? Explain in detail the types and modes of Communication.
2. How is Verbal Communication different from Non- verbal Communication? How important is the non-verbal communication in conveying the ideas and instructions?
3. Big cities in the States are the worst choice for living. The funny thing is that you have to pay dearly for the advantage of living in a city where it can be very difficult to buy your own house. Large cities are too large to control; they impose their living conditions on the people who inhabit them. City-dwellers are obliged to adopt an unusual way of life. Furthermore, it seems impossible to avoid the rush hour; wherever you go roads are blocked with cars and streets are filled with people. In addition, crimes are more in cities which are full of places you would be afraid to visit. Can anyone doubt that the country is where a man truly belongs?

In FOUR sentences, summarise and paraphrase the following passage in an answer to the following question:

Why do some people refuse to live in big cities?

4. Write a letter to an applicant for the post of Chief Accountant to present himself for a personal interview.
5. You, as a marketing manager have been given the responsibility of conducting and preparing a market research to know the market potential of a new product which your company is intending to launch in the market in near future. Prepare a draft report.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.



DEL-2024

Total No. of Pages : 04

Total No. of Questions : 11

B.Com (Honours)/B.A. (JAMC)/BHMCT (UGC)/B.Sc.Honours (Microbiology)/B.Sc. - Honours (Nutrition and Dietetics)/B.Sc. (AI&ML)/B.Sc. (BT/FT/G&WD)/ML/S/O/T/Radiotherapy Technology/B.Voc. (Child Caregiver)/BT/M/BA/BA/SIM/BCA (Sem-1)
HUMAN VALUES, DE-ADDICTION AND TRAFFIC RULES
Subject Code : HYPE101-18

M.Code : 93322

Date of Examination : 14-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Section-A is compulsory ONE mark each.
3. Section-B contains FIVE questions of FOUR marks each attempt all questions.
4. Section-C contains FIVE questions of SIX marks each attempt all questions.

SECTION-A

 $(10 \times 1 = 10)$

1. Fill in the blanks / True / False :

- i) Right understanding + = Mutual prosperity.
 सही समझ + = पारस्परिक समृद्धि
 ठीक भाव + = आपसी भुलहानी
- ii) Animal order in nature contains and
 प्रकृति में पशु आदेश में और होता है ।
 वृद्धवत् द्विच पशु आदेश द्विच अडे तुंदा है ।

一

ਸਵ-ਆਪਅਨ ਸਿੱਖਿਆ ਲਈ ਪ੍ਰਕਿਰਿਆ ਹੈ।

iv) To be in a state of liking is

नस्य क हसिब स एक अवस्था में होना नह

ਪਸੰਦ ਦੇ ਹਿਸਾਬ ਵਲੋਂ ਇਕ ਦਸ਼ਾ ਵਿੱਚ ਹੋਣਾ ਹੈ।



v) Physical facilities are necessary but for humans

भौतिक सुविधाएँ मनुष्य के लिए आवश्यक हैं, लेकिन हैं।

ਭਾਤਕ ਸਮੂਲਤਾ ਮਨੁੱਖ ਲਈ ਜ਼ਰੂਰੀ ਹਨ, ਲੇਕਿਨ ਹਨ

vi) The value "care" is related with body.

मूल्य "ध्यान" शरीर के साथ संबंधित है।

ਮੁੱਲ ਪਿਆਨ ਸਰੀਰ ਦੇ ਨਾਲ ਸੰਬੰਧਤ ਹੈ।

vii) There is no self-regulation in nature.

प्रकृति में कोई आत्म नियमन नहीं है।

ਕੁਦਰਤ ਵਿਚ ਕਈ ਆਤਮ ਨਿਯਮਤਾ ਨਹੀਂ ਹੈ

viii) Developing ethical competence in individual ensures professional ethics

सुनिश्चित करता है

ਪੰਜਾਬ ਦੇ ਇਕ ਮੁਖੀ ਪੰਜਾਬ ਨਿਰਮਾਣ ਯੋਜਨਾ ਕਰਦਾ ਹੈ।

new technologies should be eco-friendly and people-friendly

समग्र प्राधान्याकार्यों पर्यावरण के अनुकूल और लोगों के अनुकूल होना चाहिए।

ਮਰਥਾਗਾਂ ਤਕਨੀਕਾਂ ਵਾਤਾਵਰਣ ਦੇ ਅਨੁਕੂਲ ਅਤੇ ਲੋਕਾਂ ਦੇ ਅਨੁਕੂਲ ਹੋਣੀਆਂ
ਚਾਹੀਦੀਆਂ ਹਨ।

x) Existence is nature submerged in space

अस्ति त्व अंतरिक्ष में इष्टे हुए प्रकृति है

ਅਸਤੀਤਵ ਖਲਾਅ ਵਿੱਚ ਸਮਾਈ ਹੋਈ ਕੁਦਰਤ ਹੈ।

SECTION-B

$$(4 \times 5 = 20)$$

2. What do you mean by SVDD, SSD and SSSS? How is the transformation possible from SSD to SSSS?

आपका SVDD, SSDD और SSSS से क्या मतलब है? SSDD से SSSS के लिए परिवर्तन कैसे संभव है?

ਤੁਹਾਡਾ SVD, SSD ਅਤੇ SSS ਤੋਂ ਵੀ ਮਤਲਬ ਹੈ? SSD ਤੋਂ SSS ਤੱਕ ਦੀ ਤਬਦੀਲੀ ਕਿਸ ਤਰ੍ਹਾਂ ਸੰਭਵ ਹੈ?

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[M-93322]

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Sc.(BT) (Sem.-1)
INTRODUCTION TO BIOTECHNOLOGY**

Subject Code : BSBT-102-18

M.Code : 75325

Date of Examination: 20-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Define :

- a) Modern Biotechnology
- b) Plant Biotechnology
- c) Biotechnology in healthcare sector.
- d) BT crops
- e) GM foods
- f) Food Biotechnology
- g) Food quality determinants
- h) Acetic acid fermentation
- i) Beer
- j) Penicillin

SECTION-B

2. What is Biotechnology? Give an overview of various branches of Biotechnology and their importance.
3. Give an overview of important biotechnological applications in environmental sector.
4. Give an overview of applications of Biotechnology in agriculture sector. Also write a brief note on the commercial aspects of GM foods in India.
5. Explain biotechnological processes involved in the production of food additives.
6. Write a brief note on the fermentative production of L-asparaginase.

SECTION-C

7. Explain its importance in the agricultural, pharmaceutical, and industrial sectors.
8. Illustrate the role of Food Biotechnology in the production of fermented foods.
9. Discuss important fermentative procedures to obtain antibiotics and ethanol.

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC against the Student.

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Dec-2024

Total No. of Questions

Total No. of Pages : 02

B.Sc.(BT) (Sem.-1)

BASICS OF BIOSCIENCES
Subject Code: BZT-101

Subject Code : BSBT-107-18

M.Code : 75330

Time : 3 Hrs.

Date of Examination : 02-01-2025

Max. Marks : 30

INSTRUCTIONS TO CANDIDATES -
SECTION 1

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying $2\frac{1}{2}$ (Two and Half) marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying FIVE marks each and students has to attempt any TWO questions.

SECTION-A

1. Answer briefly:
 - (i) Define species.
 - (ii) What is the function of mitochondria in eukaryotic cells?
 - (iii) Draw the diagram of a neuron.
 - (iv) What is inflorescence?
 - (v) Give an example of a monocot and a dicot plant.
 - (vi) Which organisms are included under kingdom Protista?
 - (vii) Describe the features of flagellates.
 - (viii) What are vertebrates and invertebrates?
 - (ix) Give examples of two beneficial fungi.
 - (x) Define biodiversity.

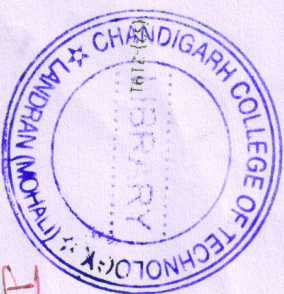
SECTION-B

2. Write a note on root system in plants.
 3. What is the difference between mitosis and meiosis?
 4. What are the salient features of epiphyseal tissues?
 5. Name the major classes of animal kingdom.
 6. Describe the features of cardiac tissue.
- SECTION-C**
7. Describe five-kingdom classification of living organisms.
 8. Discuss the morphology of flowering plants.
 9. What are biomolecules? Write a note on major biomolecules produced by cells.

SECTION-C

7. Describe five-kingdom classification of living organisms.
8. Discuss the morphology of flowering plants.
9. What are biomolecules? Write a note on major biomolecules.

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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc.(BT) (Sem.-1)

INORGANIC CHEMISTRY

Subject Code : BSBT-101-18

M.Code : 75324

Date of Examination: 21-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1) Answer briefly :

- What is the Effective nuclear charge?
- Explain the ionic radii.
- Explain the coordination number with examples
- Explain the optical isomerism.
- Explain the paramagnetism and diamagnetism.
- What is van-der waal forces?
- Explain the structure of BF_3 molecule.
- Explain the structure of PF_6 .
- What is the oxidation number?
- What is inert pair effect?

SECTION-B

- 2) Explain the valence bond theory and its limitations.
- 3) Explain the structure of IF_7 and XeF_4 .
- 4) Explain the directional characteristics of covalent.
- 5) Explain electron affinity and its trend in period.
- 6) Explain Inter and intra molecular H- bonding.

SECTION-C

- 7) Explain the back bonding with examples.
- 8) Explain the crystal field theory.
- 9) Explain the Werner's coordination theory.

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Roll No.

Total No. of Questions : 09

Total No. of Pages :02

B.Sc.(BT) (Sem.-1)

INTRODUCTION TO BIOTECHNOLOGY

Subject Code : BSBT-102-18

M.Code : 75325

Date of Examination: 20-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. SECTION 1

1. SECTION-A is COMPULSORY :
each.
2. SECTION-B contains FIVE questions carrying TWO marks
have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students
have to attempt any TWO questions.

SECTION-A

1. Define :
 - a) Modern Biotechnology
 - b) Plant Biotechnology
 - c) Biotechnology in healthcare sector.
 - d) BT crops
 - e) GM foods
 - f) Food Biotechnology
 - g) Food quality determinants
 - h) Acetic acid fermentation
 - i) Beer
 - j) Penicillin

SECTION-C

7. Explain its importance in the agricultural, pharmaceutical, and industrial sectors.
8. Illustrate the role of Food Biotechnology in the production of fermented foods.
9. Discuss important fermentative procedures to obtain antibiotics and ethanol.

SECTION-B

2. What is Biotechnology? Give an overview of various branches of Biotechnology and their importance.
3. Give an overview of important biotechnological applications in environmental sector.
4. Give an overview of applications of Biotechnology in agriculture sector. Also write a brief note on the commercial aspects of GM foods in India.
5. Explain biotechnological processes involved in the production of food additives.
6. Write a brief note on the fermentative production of L-asparaginase.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Sc.(BT) (Sem.-1)
INTRODUCTION TO BIOTECHNOLOGY**
Subject Code : BSBT-102-18
M.Code : S75325

Date of Examination: 20-01-2025

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Define briefly :

- (a) Applications Pharmaceutical Biotechnology.
- (b) Modern Biotechnology
- (c) GM Tomato
- (d) Disadvantages of GM crops.
- (e) Preprocessed food
- (f) Antibiotics
- (g) Green Biotechnology
- (h) BT Brinjal
- (i) Role of Biotechnology in health care.
- (j) Insect resistant plants

SECTION-B

2. What is Plant Biotechnology? Discuss its applications.
3. How can we produce GM papaya using Biotechnology? Write down its advantages.
4. Discuss the role of microbes in enhancing food Quality.
5. Discuss production of penicillin.
6. Write short note on overview of Biotechnology institutions in India.

SECTION-C

7. What is Biotechnology? Discuss traditional biotechnology and its applications?
8. What are genetically modified crops? Discuss in detail production of BT Cotton.
9. Discuss in detail production of ethanol?



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Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (BT) (Sem.-2)
BIOSTATISTICS
Subject Code : BSBT-203-18
M.Code : 75874

Date of Examination : 09-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly:

- Define Variance with formula.
- Define Normal Distribution.
- Calculate mean for the 10, 5, 3, 8, 7 and 9.
- Define Relative Frequency.
- Define F residuals.
- What is the formula for residuals in two way ANOVA?
- Define probable error.
- Give two uses of randomized block design.
- Give two applications of fourier transformation.
- What is the probability of getting three on dice when dice thrown once?

SECTION-B

2. A bag contains 30 balls numbered from 1 to 30. One ball is drawn at random. Find the probability that the number of the ball drawn will be a multiple of

- 5 or 7
- 3 or 7.

3. Give the salient features of Residuals in statistics.

4. Describe the importance of randomized block design.

5. Calculate the Karl Pearson coefficient of correlation from the given below data :

Roll No	1	2	3	4	5
Marks in Maths	48	35	17	23	47
Marks in biostatistics	45	20	40	25	45

6. Write a short note on Curve smoothening.

SECTION-C

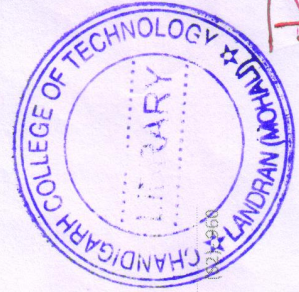
7. Perform One Way ANOVA for the given below data :

A	B	C
2	3	4
3	4	5
4	5	6

For $F_{0.05}(2,6) = 5.14$

- a) Describe in detail about Regression.
b) Normal distribution.
- a) A coin is tossed six times. What is the probability of obtaining at least four tails?
b) Give a brief account of Design of Experiments.

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Total No. of Pages : 02

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Total No. of Questions : 09

B.Sc. (BT) (Sem.-2)

PHYSICAL CHEMISTRY

Subject Code : BSBT-201-18

M.Code : 75872

Date of Examination : 14-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. **Write briefly:**
 - a) Define state variables.
 - b) State and explain Henry's law.
 - c) How is molecular weight of a solute related to its osmotic pressure?
 - d) Give plots of rate vs concentration for different order reactions.
 - e) What are buffer solutions? Where are they used?
 - f) What type of salts do not undergo salt hydrolysis?
 - g) Explain Lever rule.
 - h) How is conductance related to transport number of an ion?
 - i) Calculate the pH of 0.005M Sulphuric acid solution.
 - j) Is entropy a criterion for spontaneity? Justify.

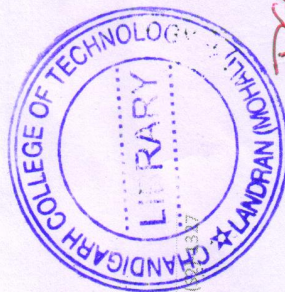
SECTION-B

2. Derive relation between C_p and C_v . Which one is greater and why?
3. What are colligative properties. Prove that depression in freezing point is a colligative property.
4. Discuss the kinetics of consecutive reactions with suitable example.
5. What are various factors that affect the specific and equivalent conductance of a electrolyte.
6. Discuss in detail all processes involved in a Carnot cycle.

SECTION-C

7. a) Compare adiabatic and isothermal expansion of gases under different conditions.
- b) Derive Gibbs Helmholtz equation and give its significance.
8. a) Draw Phase diagram for water and enlist its salient features.
- b) Differentiate between order and molecularity. Does half-life of a reaction vary with the order, justify.
9. a) What are conductometric titrations, give their principle and advantages and explain a conductometric curve with any one example.
- b) **Write short notes on :**
 - i) Vapour Pressure.
 - ii) Distillation.

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Dec-2023

Roll No.

Total No. of Questions : 11

Total No. of Pages : 04

B.A.(JAMC) / BBA / B.Com (Hons) / BCA / BHMCT / B.Sc. Hons.
(Nutrition and Dietetics / Fashion Design / Graphics & Web Designing /
Information Technology / Medical Lab Sciences / Operation Theatre
Technology) / BTM / M.Com (Sem.-1, 2)

HUMAN VALUES, DE-ADDICTION & TRAFFIC RULES

Subject Code : HVPE101-18

M.Code : 75087

Date of Examination : 16-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- SECTION-A is compulsory.
- SECTION-B contains FIVE questions. Each question carry FOUR marks. Attempt All.
- SECTION-C contains FIVE questions with internal choice. Each question carry SIX marks. Attempt All.

SECTION-A

(10 × 1 = 10)

1. Write briefly :

- How the value "Guidance" is related with self.
ਸੂਚਕ "ਗਾਇਡੈਂਸ" ਸਵੈ ਦੇ ਨਾਲ ਕਿਵੇਂ ਸੰਬੰਧਿਤ ਹੈ?
- What do you mean by respect?
ਆਪਕਾ ਸਤਕਾਰਨ ਕੀ ਮਤਲਬ ਹੈ?

2. What is animal order?

ਜੀਵ ਆਦੇਸ਼ ਕੀ ਹੈ?

ਜੀਵ ਆਦੇਸ਼ ਕੀ ਹੈ?

3. What is immateness?

ਸੁਮਾਤਿਕਤਾ ਕੀ ਹੈ?

ਸਵਾਭਾਵਿਕਤਾ ਕੀ ਹੈ?

e) What is Utility-Value?

ਉਪਯੋਗਿਤਾ-ਮੁੱਲ ਕੀ ਹੈ?

ਉਪਯੋਗਿਤਾ-ਮੁੱਲ ਕੀ ਹੈ?

f) What is value of any unit in the larger order?

ਕੋਈ ਆਦੇਸ਼ ਕਿਸੇ ਵੀ ਇਕਾਈ ਦਾ ਕੀ ਮੁੱਲ ਹੈ?

ਵੱਡੇ ਆਦੇਸ਼ ਵਿੱਚ ਕਿਸੇ ਵੀ ਇਕਾਈ ਦਾ ਕੀ ਮੁੱਲ ਹੈ?

g) What is Holistic System?

ਸਮਗਰ ਪ੍ਰਣਾਲੀ ਕੀ ਹੈ?

ਸਰਬੱਧਿਕ ਪ੍ਰਣਾਲੀ ਕੀ ਹੈ?

h) What is Perseverance?

ਅਟਕਤਾ ਕੀ ਹੈ?

ਧੀਰਜ ਕੀ ਹੈ?

i) Explain Natural Acceptance.

ਸਹਜ ਸਵੀਕ੍ਰਿਤੀ ਸਮਝਾਓ।

ਕੁਦਰਤੀ ਮੰਜੂਰੀ ਸਮਝਾਓ।

j) What is Mutual Fulfilment?

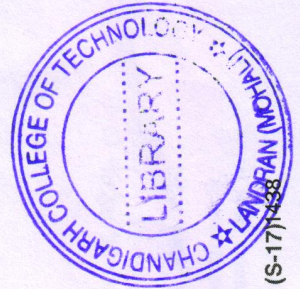
ਪਾਰਸਪਰਿਕ ਪੂਰਤਿ ਕੀ ਹੈ?

ਆਪਸ ਦੀ ਪੂਰਤੀ ਕੀ ਹੈ?

SECTION-B

(5 × 4 = 20)

- What is the need for value education in technical and other professional Institutions?
ਤਕਨੀਕੀ ਆਦਿ ਹੋਰ ਪੇਸ਼ੇਵਰ ਸੰਸਥਾਵਾਂ ਵਿੱਚ ਮੁੱਲ ਦੀ ਸਿੱਖਿਆ ਦੀ ਕੀ ਲੋੜ ਹੈ?
- What do you mean by SVDD, SSDD and SSSS? How is the transformation possible from SSDD to SSSS?
ਆਪਕਾ SVDD, SSDD ਅਤੇ SSSS ਕੀ ਮਤਲਬ ਹੈ? SSDD ਤੋਂ SSSS ਤੱਕ ਦੇ ਪਰਿਵਰਤਨ ਕਿਵੇਂ ਸੰਭਵ ਹੈ?
- What do you mean by SVDD, SSDD and SSSS? How is the transformation possible from SSDD to SSSS?
ਆਪਕਾ SVDD, SSDD ਅਤੇ SSSS ਕੀ ਮਤਲਬ ਹੈ? SSDD ਤੋਂ SSSS ਤੱਕ ਦੀ ਪਰਿਵਰਤਨ ਕਿਵੇਂ ਸੰਭਵ ਹੈ?



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4. What do you mean by Animal Consciousness and Human Consciousness? How is the transformation possible from Animal Consciousness to Human Consciousness?
- आपका पशु चेतना और मानव चेतना से क्या मतलब है? पशु चेतना से मानव चेतना परिवर्तन कैसे संभव है?
- डूहाड़ा पशु चेतना अਤੇ मनुषी चेतना ਤੋਂ ਕੀ ਮਤਲਬ ਹੈ? ਪਸ਼ੂ ਚੇਤਨਾ ਤੋਂ ਮਨੁੱਖੀ ਚੇਤਨਾ ਤੱਕ ਦੀ ਤਬਦੀਲੀ ਕਿਸ ਤਰ੍ਹਾਂ ਸੰਭਵ ਹੈ?
5. Explain competence in Professional Ethics.
- ਪੇਸ਼ੇਵਰ ਨੈਤਿਕਤਾ में क्षमता समझाओ।
- ਪੇਸ਼ੇਵਰ ਨੈਤਿਕਤਾ ਵਿੱਚ ਸਮਰੱਥਾ ਸਮਝਾਓ।
6. What are the implications of value based living?
- ਮੂਲ्य आधारित जीवन यापन के अच्छे परिणाम क्या हैं?
- ਕਦਰਾਂ ਕੀਮਤਾਂ ਆਧਾਰਿਤ ਜੀਵਨ ਜੀਉਣ ਦੇ ਚੰਗੇ ਨਤੀਜੇ ਕੀ ਹਨ?

SECTION-C

(6 × 5 = 30)

7. Compare the Four Orders in nature on the basis of their salient aspects.
- मुख्य पहलुओं के आधार पर प्रकृति में चार आदेशों की तुलना करें।
- ਮੁੱਖ ਪਹਿਲੂਆਂ ਦੇ ਆਧਾਰ ਉੱਤੇ ਕੁਦਰਤ ਵਿੱਚ ਚਾਰ ਆਦੇਸ਼ਾਂ ਦੀ ਤੁਲਨਾ ਕਰੋ।

OR

- What is the meaning and purpose of Self-Exploration?
- स्वयं-अन्वेषण के अर्थ और उद्देश्य क्या हैं?
- ਆਤਮ - ਅਧਿਐਨ ਦੇ ਮਤਲੱਬ ਅਤੇ ਉਦੇਸ਼ ਕੀ ਹਨ?
8. Describe basic human aspirations. What are the requirements to fulfill basic human aspirations?
- बुनियादी मानवीय आकांक्षाएं क्या हैं? बुनियादी मानवीय आकांक्षाओं को पूरा करने के लिए आवश्यकताओं का वर्णन करें?
- ਬੁਨਿਆਦੀ ਮਨੁੱਖੀ ਖਿੱਛਾਵਾਂ ਕੀ ਹਨ? ਬੁਨਿਆਦੀ ਮਨੁੱਖੀ ਖਿੱਛਾਵਾਂ ਨੂੰ ਪੂਰਾ ਕਰਨ ਲਈ ਜ਼ਰੂਰਤਾਂ ਦਾ ਵਰਣਨ ਕਰੋ?

OR

- What are the different patterns of differentiation?
- भेदभाव के विभिन्न पैटर्न क्या हैं?
- ਫਰਕ ਦੇ ਵੱਖ-ਵੱਖ ਪੈਟਰਨ ਕੀ ਹਨ?
9. What is the difference between belief and understanding?
- विश्वास और समझ में क्या अंतर है?
- ਵਿਸ਼ਵਾਸ ਅਤੇ ਸਮਝ ਵਿੱਚ ਕੀ ਅੰਤਰ ਹੈ?

[M-75087]

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OR

- What are the programmes to ensure Health?
- स्वास्थ्य को सुनिश्चित करने के लिए क्या-क्या कार्यक्रम हैं?
- ਸਿਹਤ ਨੂੰ ਠੀਕ ਰੱਖਣ ਲਈ ਕਿਹੜੇ-ਕਿਹੜੇ ਤਰੀਕੇ ਹਨ?
10. Critically examine our state today in terms of fulfillment of relationships and physical facilities. What has gone wrong according to you? What is the solution?
- परिस्थिति को पूर्ण और भौतिक सुविधाओं की दृष्टि से आज हमारी स्थिति का आलोचनात्मक परीक्षण करें। आपके अनुसार क्या गलत हुआ है? क्या निदान है?
- ਰਿਸ਼ਤਿਆਂ ਅਤੇ ਭੌਤਿਕ ਸਹੂਲਤਾਂ ਦੀ ਪੂਰਤੀ ਦੇ ਮਾਮਲੇ ਵਿੱਚ ਅੱਜ ਸਾਡੇ ਰਾਜ ਦੀ ਗੰਭੀਰਤਾ ਨਾਲ ਜਾਂਚ ਕਰੋ। ਡੂਹਾਡੇ ਅਨੁਸਾਰ ਕੀ ਗਲਤ ਹੋਇਆ ਹੈ? ਹੱਲ ਕੀ ਹੈ?

OR

- What are the five dimensions of Human Endeavour in society?
- समाज में मानव प्रयास के पांच आयाम क्या हैं?
- ਸਮਾਜ ਵਿੱਚ ਮਨੁੱਖ ਕੋਸ਼ਿਸ਼ ਦੇ ਪੰਜ ਪਹਿਲੂ ਕੀ ਹਨ?
11. Explain self-organisation and health.
- आत्म संगठन और स्वास्थ्य के बारे में बताएं।
- ਆਤਮ ਸੰਗਠਨ ਅਤੇ ਸਿਹਤ ਦੇ ਬਾਰੇ ਵਿੱਚ ਦੱਸੋ।

OR

- Suggest ways to enhance the fulfillment of human order with the other three orders. Mention any two programs you can undertake in light of the above.
- अन्य तीन आदेशों के साथ मानव आदेश की पूर्ति को बढ़ाने के तरीके सुझाएं। उपरोक्त के आलोक में किन्हीं दो कार्यक्रमों का उल्लेख करें जिन्हें आप अपना सकते हैं।
- ਹੋਰ ਤਿੰਨ ਆਦੇਸ਼ਾਂ ਦੇ ਨਾਲ ਮਨੁੱਖੀ ਆਦੇਸ਼ ਦੀ ਪੂਰਤੀ ਨੂੰ ਵਧਾਉਣ ਦੇ ਤਰੀਕਿਆਂ ਦਾ ਸੁਝਾਅ ਦਿਓ। ਕਿਸੇ ਵੀ ਦੋ ਪ੍ਰੋਗਰਾਮਾਂ ਦਾ ਜ਼ਿਕਰ ਕਰੋ ਜੋ ਤੁਸੀਂ ਉਪਰੋਕਤ ਦੀ ਰੋਸ਼ਨੀ ਵਿੱਚ ਸ਼ੁਰੂ ਕਰ ਸਕਦੇ ਹੋ।

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Roll No.

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Total No. of Questions : 09

Total No. of Pages : 02

**B.Sc. (BT) (Sem.-3)
INTRODUCTION TO COMPUTERS**

Subject Code : BSBT-307-18

M.Code : 76614

Date of Examination : 28-11-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly:

- a) What are analog computers?
- b) Name any two languages used in computers.
- c) What is the need for computer hardware?
- d) Discuss types of printers.
- e) Define Secondary storage.
- f) Write about real mode in computer.
- g) What is use of optical Disk?
- h) What is the use of plotters?
- i) Discuss the role of NCBI data model.
- j) What is DNA sequence?

SECTION-B

2. Discuss the functional units of Computer.
3. What is the importance of genebank sequence in database?
4. What is voice response unit?
5. Explain the various input and output used in computer.
6. Discuss the different modes of communication with computer.

SECTION-C

7. How Internet is beneficial for the Biologist to study sequence behavior?
8. Discuss various ways to store data in computer. Which are latest Storage devices?
9. Give the introduction database searching. How multiple sequence alignment is used in Bioinformatics?



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Roll No.

Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. (BT) (Sem.-3)
ORGANIC CHEMISTRY
Subject Code : BSBT/301/18
M.Code : 76608

m. Code: 76608
Date of Examination : 02-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly:
 - a) Explain the Electrometric effect.
 - b) What are nucleophile?
 - c) Name two methods formation of alkanes.
 - d) What is the Carboanion?
 - e) Define the Hyperconjugation.
 - f) Name any two reagents.
 - g) Name any two organic reactions.
 - h) Why tertiary carbocation is more stable?
 - i) What is the geometry of carboanion.
 - j) Define Diene with one example.

SECTION-B

2. Explain the Kolbe reaction with mechanism.
3. Explain the acidic behavior of alcohols along with example.
4. Explain the physical properties of carboxylic acids.
5. Explain the conformation of cycloalkene.
6. Explain the Kekule structure of benzene.

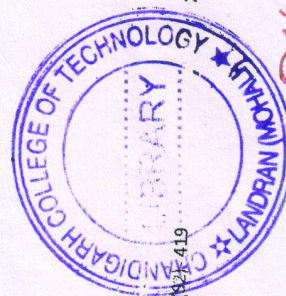
SECTION-C

7. What is the Kolbe's reaction and its mechanism.
8. Explain the carbocation along with the stability of this.
9. Explain the Reinjer Tiemann reaction and its mechanism.

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Total No. of Pages : 02.

B.Sc. (BT) (Sem.-3)

IMMUNOLOGY

Subject Code : BSBT-302-18

M. Code : 76609

Date of Examination : 25-11-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- INSTRUCTIONS TO CANDIDATES :**
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly:
 - a) What is meant by innate immunity?
 - b) What kind of immune response is generated upon invasion by a viral pathogen?
 - c) Describe the role of null cells in immune system.
 - d) Draw the structure of different types of white blood cells.
 - e) How do macrophages contribute to immune response?
 - f) What is the function of interleukins?
 - g) Define immunoprecipitation.
 - h) What are T_H cells?
 - i) What is an adjuvant?
 - j) What is MHC?

SECTION-B

2. Describe the specific features of an immune system.
3. Write a note on organs of immune system.
4. Describe the structure of an immunoglobulin. Discuss the types of immunoglobulins and their specific role.
5. Discuss the surface markers of T cells.
6. Write a note on antigen presenting cells.

SECTION-C

7. What is complement cascade? Describe its biological effect.
8. Write a note on vaccines.
9. Describe the stages of maturation of B lymphocytes.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (BT) (Sem.-4)

GENETIC ENGINEERING

Subject Code : BSBT401-18

M.Code : 77690

Date of Examination: 12-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly:

- a) How does blue white screening distinguish between recombinant and non-recombinant colonies?
- b) In which types of cells is microinjection most commonly performed?
- c) What is the primary purpose of gene shuffling in biotechnology?
- d) What is random mutagenesis?
- e) How can molecular pharming contribute to the production of vaccines?
- f) What is one common purpose for creating transgenic cattle?
- g) What is a common example of a plant virus used as an episomal vector?
- h) What is a Ti plasmid?
- i) How are embryonic stem cells modified to introduce new genes?
- j) Which genetic modification was used to enhance the Flavr Savr tomato's shelf life?

SECTION-B

2. Explain the process of transduction in bacteria, detailing the roles of bacteriophages in the transfer of genetic material. How does generalized and specialized transduction differ in their mechanisms and outcomes?
3. Give a detailed note on chimeric proteins.
4. What are direct methods of DNA transfer in plants?
5. What are plasmids? Give examples along with applications.
6. How one can select the mutant peptides by Phage display techniques?

SECTION-C

7. Describe the principles and techniques used in protein engineering.
8. Describe the various techniques and applications of animal genetic engineering.
9. Give a detailed note on Recombination.

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Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc. (Biotechnology) (Sem.-4)
INDUSTRIAL BIOTECHNOLOGY
Subject Code : BSBT-403-18
M.Code : 77692

Date of Examination: 13-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly:

- a. Maceration in wine making.
- b. Transformation
- c. Sweet wort
- d. Sparger
- e. Baffles
- f. VVM
- g. Biocontrol
- h. Biosafety
- i. Biocatalyst
- j. Genetic marker.

SECTION-B

2. Compare the benefits of biofertilizers with chemical fertilizers.
3. Describe the role of Hops in Beer production.
4. Compare 'Beer' and 'Wine'.
5. Describe some short-term methods for microbial culture preservation.
6. Enlist some uses of organic acids.

SECTION-C

7. What do you mean by immobilization? Describe its types. Discuss some applications of immobilized cells and enzymes.
8. Write a detailed note on vinegar making with the help of flow chart.
9. Explain the design and operation of any bioreactor with the help of diagram.



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Roll No.

Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. (BT) (Sem.-5)

ORGANIC FARMING

Subject Code : BSBT501-18

M.Code : 78346

Date of Examination : 02-12-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Organic farming
- b) Soil health cards
- c) Rhizobium
- d) Contribution of Sir Albert Howard
- e) Trichogramma cards
- f) Natural farming
- g) Green manure
- h) Non-edible castor cake
- i) Trichoderma
- j) Homemader Neem extract

SECTION-B

2. Write down role of organic farming in sustainable agriculture.
3. What do you mean by Bio remediation?
4. Discuss the harmful effect of non-judicious chemical fertilizers.
5. Define biofertilizers. Discuss limitations of biofertilizers.
6. Write a short note on significance of organic farming.

SECTION-C

7. Discuss the role of micro-organisms in degradation of pesticides.
8. Enlist different green manuring crops. Write down procedure of production and incorporation of green manure crop. Write down advantages and disadvantages of green manure crops.
9. a) Discuss the importance of soil enzymes in organic farming.
b) Differentiate farmyard manure vermi-compost.
c) Describe the use of sewage sludge in agriculture, its pros and cons.



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Dec-2024

Roll No.

Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. (BT) (Sem.-5)
BIOTECHNOLOGY IN FORENSIC SCIENCES

Subject Code : BSBT142-18

M.Code : 78353

Date of Examination : 25-11-2024

Time : 3 Hrs.

Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying 2 marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) What is the principle of forensic science?
- b) Which technique is used for DNA testing?
- c) Which software is used for recognition and matching of fingerprints?
- d) What do you mean by terminal ballistics?
- e) What is the use of spectrophotometer in forensic examination?
- f) Which technique is widely use for the analysis of explosives?
- g) How is rigor mortis helpful in forensic medicine?
- h) What forms the basis of fingerprint classification?
- i) What is the difference between primary and secondary blast injuries?
- j) How are forensic evidences preserved?

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SECTION-B

2. How is ink chromatography helpful in forensics?
3. Where are National Forensic Science Laboratories in India located?
4. How are injuries classified based on medico-legal aspects?
5. What is forensic toxicology?
6. How are fingerprints for forensic investigation collected?

SECTION-C

7. How is cause of death assessed by a forensic scientist?
8. Write a note on Cyber crimes and their prevention.
9. What is the role of biotechnology in forensic science?

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Roll No. ☐

Total No. of Pages : 02

Total No. of Questions : 09

**B.Sc. (BT) (Sem.-5)
HUMAN BEHAVIOUR & PSYCHOLOGY**

Subject Code : BSBT137-18

M.Code : 78348

Date of Examination : 28-11-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) What is the importance of studying psychology in present times?
- b) Stereotyping
- c) Halo effect
- d) Define intelligence.
- e) How do emotions affect motivation?
- f) What is 'Type A' personality?
- g) What are the elements of creativity?
- h) Positive motivation
- i) Self-actualisation
- j) Reinforcement.

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SECTION-B

2. Describe the concept of instrumental conditioning.
3. Explain the scope of psychology.
4. Explain sensory processes.
5. Discuss the classical conditioning theory of learning.
6. Discuss the types of conflict.

SECTION-C

7. Explain the psychodynamic theory of psychology.
8. What are the determinants of personality? Discuss.
9. How can conflict be handled constructively? Discuss the various conflict-handling strategies.



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DSC-2024

Roll No.

Total No. of Questions : 09

Total No. of Pages : 02

B.Sc. (BT) (Sem.-5)
ANIMAL BIOTECHNOLOGY
Subject Code : BSBT139-18
M.Code : 78350

Date of Examination : 17-12-2024

Time : 3 Hrs.

Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.
2. SECTION-B contains FIVE questions carrying TWO & HALF ($2\frac{1}{2}$) marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Sources of stem cells
- b) First transgenic cow
- c) Artificial insemination
- d) Name a Retrovirus in humans.
- e) Symptoms of Trypanosomiasis.
- f) Application of microinjection.
- g) Uses of transgenic insects.
- h) Reason behind Coccidiosis.
- i) Problems in genetic modification.
- j) Name the vectors used in gene therapy.

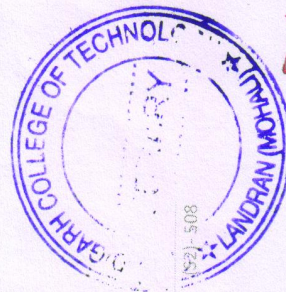
SECTION-B

2. How does a retrovirus work?
3. Write a note on curing of foot and mouth disease by Biotechnology.
4. How Dolly sheep was cloned?
5. Discuss about embryo transfer technique.
6. What are different types of gene therapy? Explain.

SECTION-C

7. What are transgenic animals? Give an account of production of transgenic cow.
8. What are various direct and indirect methods of gene transfer?
9. Describe the term molecular engineering in detail with suitable examples.

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Dec-2024