Telangana University
UG – CBCS – II semester –2022-23
B.Sc. Biotechnology Practical Model Question Paper
(DSC - 1B) Microbiology & Biological Chemistry (BS-204)

Max Marks: 50 **Time: 3 Hrs**

I) Major (20M)

II) Minor (10M)

III) Spotters (5X2 = 10M)

IV) Record (5M)

V) Viva Voce (5M)

Major and Minor Questions

1. Estimate the amount of protein in the given sample using Biuret method (Major)
2. Perform separation of amino acids using paper chromatography (Major)
3. Determine the strain of bacteria as per differntial staining method (Major)
4. Perform streak, spread and pour plate method under laminar airflow cabinet (Major)
5. Qualitative test of sugars (Minor)
6. Qualitative test of amino acids (Minor)
7. Perform serial dilution method for isolation of bacteria from soil (Minor)
8. Simple Staining (Minor)

Spotters

1. Lock and Key Model
2. Competitive Inhibition
3. RUBISCO
4. ATP Synthase
5. Laminar Air Flow Cabinet
6. Autoclave
7. Globular Protein
8. Tertiary Structure of Protein
9. Osazone
10. Sigmoidal Curve
11. Sterilization of thermolabile compounds
12. pH meter

Telangana University
UG – CBCS – II semester –2022-23
B.Sc. Biotechnology Practical Model Question Paper
(DSC - 1D) Bioinformatics & Biostatistics (BS-405)

Max Marks: 50 **Time: 3 Hrs**

I) Major (20M)

II) Minor (10M)

III) Spotters (5X2 = 10M)

IV) Record (5M)

V) Viva Voce (5M)

Major and Minor Questions

1. Perform BLAST (BlastN) with human insulin gene and list out the top genes similar to that of human insulin from NCBI portal (Major)
2. Translate the human insulin gene into protein using EXPASY tool (Major)
3. Problem on hypothesis test using t-test (Major)
4. Problem on hypothesis test using Chi Square test (Major)
5. Retrieve the human insulin, somatostatin and somatotropin genes from NCBI portal (Minor)
6. Perform BLASTP with antiporter gene of *Arabidopsis thaliana* (Minor)
7. Problem on probability distribution – biological significance (Minor)
8. Statistical analysis using Median or Standard Deviation (Minor)

Spotters

1. BLASTX
2. Pair-wise alignment
3. Multiple Sequence Alignment
4. Histogram
5. Bar Diagram
6. Pie Diagram
7. PAM
8. BLOSUM
9. PIR
10. PROSITE
11. Normal Probale Curve

Telangana University
UG – CBCS – II semester –2022-23
B.Sc. Biotechnology Practical Model Question Paper
(DSE - 1F) Environmental Biotechnology (BS-605)

Max Marks: 50 **Time: 3 Hrs**

I) Major (20M)

II) Minor (10M)

III) Spotters (5X2 = 10M)

IV) Record (5M)

V) Viva Voce (5M)

Major and Minor Questions

1. Determine the biological oxygen demand (BOD) from the given sewage sample (Major)
2. Estimate the COD levels in the given water sample (Major)
3. Find out the total dissolved solids in the given water samples (Major)
4. Find out the coliforms for determining the purity of potable water (Major)
5. Isolate the amylase producing microorganisms from the given soil sample (Minor)
6. Write a detailed outline on production of biogas (Minor)
7. Explain the procedure involved in hydrogen production using microorganisms (Minor)
8. Identify and characterize the microorganisms involved in bioremediation (Minor)

Spotters

1. Air Pollution or Water Pollution
2. Municipal solid waste management
3. Industrial Effluent Treatment
4. Greenhouse effect
5. Algal Blooms
6. Microbial Biofertilizers
7. Oxidation ponds
8. Vermiculture
9. Biodegradation Principle
10. Mechanism of Phytoremediation
11. Compost
12. Bacterial degradation of xenobiotic compounds
13. Effluent Treatment Plant (ETP)

Telangana University
UG – CBCS – II semester –2022-23
B.Sc. Biotechnology Practical Model Question Paper
(DSE - 1F) Animal Biotechnology (BS-605)

Max Marks: 50 **Time: 3 Hrs**

I) Major (20M)

II) Minor (10M)

III) Spotters (5X2 = 10M)

IV) Record (5M)

V) Viva Voce (5M)

Major and Minor Questions

1. Preparation of primary chicken embryo liver cells (Major)
2. Determine the cell count using hemocytometer (Major)
3. Prepare animal cell culture media (Major)
4. Prepare a single-cell suspension from mouse spleen (Major)
5. Prepare human metaphase chromosomes (Minor)
6. Subculture of adherent cells (Minor)
7. Isolation and primary culture of rat hepatic cells (Minor)
8. Sterilization of cell culture media (Minor)

Spotters

1. Primary Cell Culture
2. Secondary Cell Culture
3. Laminar Air Flow Cabinet
4. Autoclave
5. Microfiltration
6. CO_2 incubator
7. Metaphase stage
8. RFLP
9. Microinjection
10. Trypan Blue