

GANPAT UNIVERSITY
M.Sc. First Semester Examination Nov-Dec, 2012
Subject: Biotechnology/Microbiology
Paper: BTA/MBA 101 CMB Cell and Molecular Biology

Time: 3 hours

Total Marks:70

Instructions:

1. Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
2. Answer each section in separate answer book.

SECTION: I

- Q-1 Describe structure, ultrastructure, biogenesis and functions of Chloroplast. Write a note on photosynthesis in higher plants. 14
- Q-2 Write a short notes on: 07
- a. Polytene chromosome 07
 - b. Endoplasmic reticulum 14
- Q-3 Write in details about cell-cell interaction. 07
- Q-4 Answer following questions(Each question has equal mark) 07
- a. Write names and alternative names of different types of lysosomes.
 - b. Role of Mitochondria
 - c. Role of Ribosomes
 - d. Difference between prokaryotic and eukaryotic cell wall
 - e. Enlist different components required for importing mitochondrial proteins.
 - f. What is the protoplast and spheroplast
 - g. What are the difference between Pilli and fimbria

SECTION: II

- Q-5 Write a short notes on: 07
- a. Role of different proteins and enzymes involved in prokaryotic replication 07
 - b. Gene linkage
- Q-6 Explain in detail about prokaryotic translation 14
- Q-7 Write a short notes on: 07
- a. Genetic load 07
 - b. Lac operon
- Q-8 Answer following questions(Each question has equal mark) 07
- a. Define origin of replication
 - b. Role of $cap^{\bar{}}$
 - c. Importance of DNA methylation
 - d. Difference between DNA polymerase and RNA polymerase
 - e. Define splicing
 - f. Which codon is must to start translation
 - g. Define promoter.

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GANPAT UNIVERSITY
M.Sc. First Semester Examination (C.B.C.S) Nov-Dec, 2012
Subject: Biotechnology/Microbiology
Paper: BTA/MBA 102 BCE Biochemistry and Enzymology
Time: 3 hours Total Marks: 70

Instructions:

- 1) Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
- 2) Answer each section in separate answer book.

SECTION-I

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| Q. 1. | Explain Reaction steps of the Citric acid cycle with its stoichiometry | 14 |
| Q. 2. | a. Briefly describe multienzyme complexes of Mitochondrial Oxidative Phosphorylation | 07 |
| | b. write a short note on Urea Cycle | 07 |
| Q.3. | Discuss Biosynthesis of cholesterol | 14 |
| Q.4 | a. What is role of Aspartate transcarbamoylase enzyme? | 01 |
| | b. What is ketogenesis? | 01 |
| | c. Give examples of steroids synthesized from cholesterol | 01 |
| | d. Which enzyme is deficient in PKU, a disorder of Amino acid catabolism? | 01 |
| | e. Which precursors are required for synthesis of Aromatic Aminoacids? | 01 |
| | f. Define first law of Thermodynamics | 01 |
| | g. Enlist types of Nucleotides with its significance | 01 |

SECTION-II

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|-------|--|----|
| Q.5. | Differentiate Competitive and Non competitive enzyme inhibition with its kinetics | 14 |
| Q. 6. | Explain G Protein–Coupled Receptors mediated signal transduction. | 14 |
| Q.7. | What is Allosterism? Discuss regulation of Allosteric enzyme with suitable example | 14 |
| Q.8 | a. Which techniques can be used for immobilization of enzyme? | 01 |
| | b. Define Active site | 01 |
| | c. Give M.M equation of enzyme kinetics | 01 |
| | d. Enlist characteristics of enzyme | 01 |
| | e. What is isoenzyme? Give examples of isoenzymes | 01 |
| | f. What is Zymogen? | 01 |
| | g. What is Km? Give its significance. | 01 |

END OF PAPER

GANPAT UNIVERSITY
M.Sc. First Semester Examination (C.B.C.S) Nov-Dec, 2012
Subject: Biotechnology/Microbiology
Paper: BTA/MBA 103 IAT Instrumentation and Analytical techniques
Time: 3 hours Total Marks: 70

Instructions:

- 1) Attempt any three questions from each section, of which question No. 4 and 8 are Compulsory
- 2) Answer each section in separate answer book.

SECTION - I

- 14/27*
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| Q.1 | Discuss in detail instrumentation, working and applications of phase contrast and fluorescence microscope | 14 |
| Q.2 | Write in detail about principle, working and applications of Gel filtration and Ion-exchange chromatography | 14 |
| Q.3 | Discuss principle, instrumentation, working and applications of ultracentrifugation | 14 |
| Q.4 | Write answer in short (Each question carry equal mark) | 07 |
| | a. Define pH and Buffer | |
| | b. Define potentiometric titration | |
| | c. Maximum value of N.A. achieved in compound microscope is _____ | |
| | d. Give full form of ESR and NMR spectroscopy | |
| | e. Define partition coefficient | |
| | f. Enlist detectors used in GC | |
| | g. Give two examples of commonly used buffers | |

SECTION -II

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|-----|--|----|
| Q.5 | Enlist Blotting techniques. Write in detail about Southern blotting technique and give applications of this technique. | 14 |
| Q.6 | Define electrophoresis. Discuss Principle, methodology and applications of Iso-electrofocusing technique | 14 |
| Q.7 | Discuss: Principle, working and applications of Atomic absorption spectroscopy | 14 |
| Q.8 | Write answer in short (Each question carry equal mark) | 07 |
| | a. Define Biosensor | |
| | b. Enlist types of Biosensors | |
| | c. Define autoradiograph | |
| | d. Name units of measuring radioactivity | |
| | e. Give full form of MALDI | |
| | f. Name two methods used for sequencing of DNA | |
| | g. Technique used for blotting of protein is known as _____ | |

END OF PAPER

GANPAT UNIVERSITY
M.Sc. First Semester Examination (C.B.C.S) Nov-Dec, 2012
Subject: Biotechnology/Microbiology
Paper: BTA/MBA 104 Biostatistics and Research Methodology

Time: 3 hours

Total Marks: 70

Instructions:

- 1) Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
 - 2) Answer each section in separate answer book.
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SECTION: I

- Q-1 Define measures of dispersion. Explain standard deviation giving suitable example 14
- Q-2 Explain chi square giving suitable example. 14
- Q-3 Explain a) Poisson distribution 07
b) Correlation analysis 07
- Q-4 Answer the following questions(each question has equal mark) 07
- a) Merits of mean
 - b) Define goodness of fit
 - c) What is normal distribution?
 - d) Define standard error
 - e) What the unit of measurement of central tendency?
 - f) What is skewness?
 - g) Define Mode

SECTION: II

- Q-5 Discuss how to get published research paper in scientific journal and any three difference between research paper and review paper 14
- Q-6 Enlisted various research and experimental design and discuss experimental design 14
- Q-7 a) Define research and discuss various type of Scientific research 07
b) Enlisted various data collection method and discuss any one 07
- Q-8 Answer the following questions(each question has equal mark) 07
- a) Diagnostic research studies
 - b) Impact factor
 - c) Principle of replication
 - d) Exploratory research studies
 - e) Confounded relationship
 - f) Extraneous variable
 - g) Give full form of IMRAD

-----END OF PAPER-----

GANPAT UNIVERSITY
M.Sc. First Semester Examination (C.B.C.S) Nov-Dec, 2012
Subject: Biotechnology/Microbiology
Paper: BTB/MBB 105 LCS Language and Communication Skills-I

Time: 3 hours

Total Marks: 70

Instructions:

- 1) Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
- 2) Answer each section in separate answer book.

SECTION-A

- Q-1 Attempt the following: 14
- 1) Discuss verbal communication in detail.
 - 2) Discuss conventional modes of communication
- Q-2 Write short notes on the following: 14
- 1) 7 Cs of effective communication
 - 2) Discuss visual and auditory symbols as means of nonverbal communication
- Q-3 Write short notes on the following: 14
- 1) Semantic barriers to communication
 - 2) Types of listening
- Q-4 Do as directed: 07
- (a) Fill in the blanks with appropriate forms of verbs: 04
1. 10 Kilometres _____ a long walk. (Am, Is, Are)
 2. Gulliver's Travels _____ written by John Swift. (Am, Is, Are)
 3. Either he or I _____ responsible for this mistake. (Am, Is, Are)
 4. Every boy and every girl _____ scored well. (Have, Has)
- (b) Find out which parts of speech are represented by the underlined words: 03
1. Hurrah! I have scored first class.
 2. Sehwag has played nicely in the match.
 3. Teacher had instructed to do assignment.

SECTION-B

- Q-5 Attempt the following: 14
- 1) What is reading? Discuss SQ3R technique as a technique of effective reading.
 - 2) Discuss function of paralinguistic features like tone, pause, pitch, intonation in effective speaking.
- Q-6 Write short notes on the following: 14
- 1) Indented form and Semi-block form of layout
 - 2) Discuss essentials of effective business correspondence.
- Q-7 Write letters on the following: 14
- 1) You are a dealer of LG and you have received an inquiry about availability of some types of LG televisions. Reply to your prospective buyer.
 - 2) As a dealer you have received one complaint regarding improper condition of 'sandisk pen drives' when the ordered goods had been delivered. Write a letter of adjustment to the buyer.
- Q-8 Answer the following: 07
- 1) What is the full form of SQ3R?
 - 2) List the components of effective speaking.
 - 3) List basic reading strategies.
 - 4) Give the names of different layouts of business letters.
 - 5) Which form of layout doesn't suggest including salutation or complimentary close?
 - 6) In which form all the parts of letter are written directly without leaving space from left hand margin?
 - 7) In which form of letter inside address is written after complimentary close?