SLR-UQ-531

Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018
Microbiology
MICROBIAL CHEMISTRY AND ENZYMOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part - I, questions 1 is compulsory.
2) Attempt any four questions from Part – II.
3) Figures to the right indicate full marks.
4) Draw well labeled diagrams wherever necessary.

Part – I

Q.1 Rewrite the sentences by choosing correct given below: 14

1) Carbohydrates contain carbon, hydrogen and oxygen in ratio _____.
   a) 1:1:1 b) 1:2:1
   c) 2:1:2 d) 2:2:2

2) One gram of lipid yields _____ k cal of heat.
   a) 4.5 b) 5.4
   c) 3.9 d) 9.3

3) The term lipid was first introduced by German biochemist _____ in 1943.
   a) McCollum b) Kuhne
   c) Berzelius d) Bloor

4) _____ is provitamin for Vitamin D.
   a) Carotene b) Ergosterol
   c) Sterol d) Cholesterol

5) Lactate dehydrogenase is example of _____ enzyme.
   a) Simple b) Monomeric
   c) Oligomeric d) Dimeric

6) Cytochromes are conjugated proteins consisting _____ as prosthetic group.
   a) Iron b) Sulphate
   c) Phosphate d) Nitrate

7) Emulsification is property of _____.
   a) Carbohydrates b) Proteins
   c) Fats d) Amino acids

8) Amino acids are linked together by _____ bonds.
   a) Ester b) Peptide
   c) Ether d) Acyl

9) _____ is not globular protein.
   a) Collagen b) Ovalbumin
   c) Haemoglobin d) Amylase

10) _____ is monosaccharide.
   a) Maltose b) Glucose
   c) Lactose d) Sucrose

11) Steroids contain sterols as _____ group.
   a) Alcoholic b) Acidic
   c) Aldehyde d) Acyl

12)_____ are the channel proteins involved in transport across cell membrane.

a) Prostaglandins b) Terpens
c) Interleukins d) Porins

13)_____ serves as chief storage form of energy in cells.

a) Proteins b) Vitamins
c) Lipids d) Amino acids

14)_____ is sulphur containing amino acid.

a) Levine b) Proline
c) Valine d) Methionine

Part – II

Q.2 Write an essay on classification of amino acids. **14**

Q.3 Give brief account on nomenclature and classification of enzymes. **14**

Q.4 Explain in detail modification of M-M equation with reference to Lineweaver-Burk Work. **14**

Q.5 **Attempt any two:-** **14**

a) Helix coil transition
b) Terpens
c) Haemoglobin & leg haemoglobin

Q.6 **Attempt any two:-** **14**

a) Enzyme specificity
b) Functions of Vitamins
c) Ramchandran plot

SLR-UQ-532

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018
Microbiology
RECENT TRENDS IN VIROLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part - I, questions 1 is compulsory.
2) Attempt any four questions from Part – II.
3) Figures to the right indicate full marks.
4) Answer to the Part I and Part II should be written in same answer booklet only.

Part – I

Q.1 Rewrite the sentences by choosing correct given below: **14**

1) A structural component that is found in all viruses is _____.
   a) The envelope b) DNA
   c) Capsid d) Tail fibers

2) A type of cell culture that can reproduce for an extended number of generations and is used to support viral replication is a _____.
   a) Primary cell culture b) Continuous cell line
   c) Cell strain d) Diploid fibroblast cell

3) _____ is not a RNA virus?
   a) Retrovirus b) Enterovirus
   c) Rhabadovirus d) Adenovirus

4) Bacteriophage are readily counted by the process of _____
   a) Immunoassays b) ELISA
   c) Plaque assays d) Tissue cell culture

5) Viruses range in size from _____.
   a) 1-100 nm b) 25-300 nm
   c) 10-100 μm d) 400-1000 nm

6) Potato spindle tuber disease is caused by _____.
   a) Virus b) Prions
   c) Exons d) Viroids

7) Elution process is observed in _____ virus.
   a) Influenza b) Picorna virus
   c) Mumps d) Rubella

8) A common polyhedral capsid shape of viruses is a _____.
   a) Pentagon b) Cube
   c) Icosahedrons d) Pyramid

9) Viruses that can remain latent (usually in neurons) for many years are most likely _____.
   a) Toga viruses b) Herpes viruses
   c) Entero viruses d) Rhinoviruses

10) _____ Types of viruses contain the enzyme lysozyme to aid in their infection.
   a) Bacteriophage
   b) Animal Viruses
   c) Plant Viruses
   d) Fungal Viruses

11) The phage ØX-174 genome penetrates the host cell with help of pilot protein which is product of _____.
   a) K gene
   b) A gene
   c) J gene
   d) H gene

12) For safety reasons, _____ is the least likely vaccine against HIV?
   a) Purified Gag/Pol Polyprotein
   b) Purified Gag Polyprotien
   c) Attenuated virus
   d) The virus' capsid proteins

13) Common recurrent disease produced by herpes virus type 1 is _____.
   a) Neonatal Encephalitis
   b) Cold sores
   c) Eczema herpeticum
   d) Genital warts

14) Antiviral substance produced in human body is _____.
   a) Interferon
   b) Antigen
   c) Antibody
   d) Immunogen

Part – II

Q.2 Write in detail on structure, genomic organization, pathogenesis and control of HIV virus. **14**

Q.3 Explain in detail the characteristics of transformed cells and comments on how these cells are responsible for tumor development? **14**

Q.4 **Write short answer on any two of the following:** **14**
a) Briefly describe Prions.
b) Briefly describe Emerging viruses with example.
c) Describe in detail production of Ø X-174 bacteriophage.

Q.5 **Write short answers Any Two:** **14**
a) Describe in detail satellite viruses.
b) Explain in detail multiplication, pathogenesis and control of plant viruses.
c) Briefly describe Cataloging of the viruses.

Q.6 **Write short answers Any Two:** **14**
a) Describe in detail Viroids.
b) Explain in brief Viruses pathogenic to algae and fungi.
c) Briefly describe classification and nomenclature of animal viruses.

SLR-UQ-535

Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Microbiology
MICROBIAL GENETICS

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part- I, Questions 1 is Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.
4) Answer to the Part I and Part II are to be written in same answer booklet only.

PART - I

Q.1 Choose the correct alternative given in the bracket. **14**

1) Helix unwinding during replication in accomplished by _____.
   a) DNA helicases b) DNA gyrase
   c) DNA polymerase I d) DNA polymerase II

2) The term plasmid was coined by _____.
   a) Tatum b) Ochoa
   c) Lederberg d) Delbruck

3) Coordinated regulation of a function in bacteria is brought about by regulation of synthesis of poly cistronic mRNA regulated through _____.
   a) A single signal
   b) Many signals coordinated by Rho
   c) Double signal
   d) Many signal molecules regulated by sigma factor

4) The term plasmid was coined by _____.
   a) Tatum b) Ochoa
   c) Lederberg d) Delbruck

5) Proofreading and mismatch repair in DNA is carried out by _____.
   a) DNA polymerase I b) DNA polymerase II
   c) DNA polymerase III d) Exonuclease

6) Amplification of plasmids is carried out by _____.
   a) Penicillin b) Streptomycin
   c) Chloramphenicol d) Tetracycline

7) In PCR _____ DNA polymerase is used.
   a) Type I b) Type II
   c) Type III d) Type IV

8) In one minute DNA polymerase I can add about _____.
   a) 150 bases b) 300 bases
   c) 600 bases d) 1200 bases

9) SOS response brings to halt _____.
   a) DNA synthesis b) RNA synthesis
   c) Protein Synthesis d) Carbohydrate synthesis

10) Transposons can be delivered to bacteria through _____.
   a) Phages & plasmids
   b) Pili
   c) Flagella
   d) None of these

11) _____ enzyme produces negative superhelicity and removes the positive superhelicity developed during replication.
   a) Topoisomerase
   b) DNA gyrase
   c) DNA polymerase I
   d) DNA polymerase II

12) Transposon Tn5 carries gene for _____ resistance.
   a) Kanamycin
   b) Ampicilline
   c) Penicillin
   d) Chloramphenicol

13) In A form of DNA, one turn of helix consists of _____ base pairs.
   a) 10
   b) 11
   c) 9.33
   d) 8

14) Removal thymine dimers is done by _____.
   a) DNA polymerase I
   b) DNA polymerase II
   c) DNA polymerase III
   d) Exonuclease

PART – II

Q.2 Explain types, properties and mechanism of transposition of transposable elements. **14**

Q.3 Describe in detail the process of transcription in prokaryotes and add a note on post transcriptional process. **14**

Q.4 Give the detailed account of deciphering of genetic code and its properties, **14**

Q.5 **Attempt any two of the following:-** **14**
a) Explain the techniques of gene sequencing.
b) Discuss the various enzymes involved DNA replication.
c) Describe operon model with reference to Tryptophan operon.

Q.6 **Write short notes on any Two of the following:** **14**
a) Split gene and overlapping gene
b) SOS repair
c) Detection and purification of plasmid.

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Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Microbiology
MICROBIAL ECOLOGY AND DIVERSITY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.
4) Answer to the Part I and Part II are to be written in same answer booklet only.

PART – I

Q.1 Rewrite the sentence by choosing correct alternatives from the following:- 14

1) The most dominant group of microorganisms in acidic soil is _____.
   a) Algae b) Viruses
   c) Fungi d) Protozoa

2) The term ecosystem was first introduced by _____.
   a) Auther Stanely b) Alexander
   c) Aurther Tansley d) Robert Koch

3) Thiobacillus species grows at extreme _____.
   a) Alkaline pH b) Neutral pH
   c) Acidic pH d) High pressure

4) _____ is the association between luminescent bacteria and marine animals.
   a) Parasitism b) Bioluminescence
   c) Predation d) v symbiosis

5) Peptidoglycan is absent in the cell wall of _____.
   a) Psychrophiles b) Halophiles
   c) Thermophiles d) Barophiles

6) VAM fungi is an example of _____.
   a) N_2 fixer b) Phosphate solubilizer
   c) Phosphate absorber d) Sulfur supplier

7) ____ is an association between photosynthetic algae and heterotrophic fungi.
   a) VAM b) Lichen
   c) Azolla d) Actinorhiza

8) The entities which do not contain genetic material of their own are _____.
   a) Viroids b) Prions
   c) Viruses d) Protozoa

9) Rhodomicrobium is an example of _____.
   a) Green sulphur bacteria
   b) Purple non sulphur bacteria
   c) Cyanobacteria
   d) Green non sulphur bacteria

10) _____ electrons are required to reduce one mole of nitrogen to two moles of ammonia in N_2 fixation.
a) 6 b) 8
c) 2 d) 4

11) _____ is the free living nonsymbiotic photosynthetic N_{2-} fixer
a) Rhizobium *b) Azotobacter*
c) Cyanobacteria *d) Frankia*

12) _____ association helps to improve phosphorus nutrition of plants.
a) Rhizosphere b) Mycorrhizae
c) Root nodulation d) Bioluminescence

13) *Sulfolobus* acidocaldarius is an example of _____.
a) alkliphile b) halophile
c) acidophile d) barophile

14) The bacterial population in soil is controlled by _____.
a) Bacteria b) Protozoa
c) Actinomycetes d) Fungi

PART – II

Answer any four questions from the following:-

Q.2 Define Microbial interaction. Discuss in detail microbe-microbe, microbe-plant and microbe-animal interactions. **14**

Q.3 Explain in detail Anoxygenic photosynthetic microorganism. **14**

Q.4 Write an essay on classification of Bacteria. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Describe in detail General characters of Methanogenic bacteria.
b) Briefly Explain role of Microbes in Acid mine drainage.
c) Explain how Microorganisms are playing role in prospecting of oils?

Q.6 **Write short notes on any Two of the following:** **14**
a) Describe in detail General characters of viruses.
b) Explain briefly Magneto tactic bacteria.
c) Briefly describe Oxygenic photosynthetic bacteria.

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Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Microbiology
MICROBIAL PHYSIOLOGY AND METABOLISM

Time: 2½ Hours Max. Marks: 70

Instructions: 1) From Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part-II
3) Figures to the right indicate full marks.
4) Draw neat and labeled diagram wherever required.

PART – I

Q.1 Choose the correct alternative given in the bracket. **14**

1) Like green plants _____ carry out an oxygenic photosynthesis.
   a) Corynebacteria b) Chlamydia
   c) Clostridia d) Cyanobacteria

2) Cell membrane of photosynthetic halobacteria contains _____.
   a) Bacteriorhodopsins b) Phytols
   c) Octaphytols d) Phycobilins

3) The Precursor for pyrimidine nucleotide synthesis are _____.
   a) Aspartic acid and acetate b) Aspartic acid and Pi
   c) Aspartic acid & carbamoyl - (P) d) Aspartic acid & NADH2

4) In case of photosynthetic bacteria photosynthetic apparatus is present in ___.
   a) Cell membrane b) Mesosome
   c) Cell wall d) Cytoplasm

5) Mitochondrial ETC is _____.
   a) Linear b) Branched
   c) Three dimensional d) Two dimensional

6) Cytochromes are conjugated proteins, which contain _____ as prosthetic group.
   a) Fe b) SO_4
   c) PO_4 d) CO_3

7) Phosphotransferase system catalyses phosphorylation of _____ during group translocation
   a) Amino acid b) Nucleotides
   c) Vitamins d) Sugars

8) Phycobilins are only present in red algae with exception of _____.
   a) Cyanobacteria b) Artherobacter
   c) Mitrobacter d) Citrobacter

9) In biosynthesis of saturated fatty acid, the basic adding unit is _____.
   a) adenyl CoA b) acetyl CoA
   c) succinyl CoA d) malonyl CoA

10) The enzyme catalyzing exchange of Na^+ and K^+ is called ____.
   a) $Na^+ K^+$ Permiase
   b) Na^+K^+ transferase
   c) Na^+K^+ Phosphatase
   d) Na^+K^+ ATPase

11) Aspartic acid is derived from oxaloacetate by _____.
   a) Transamination
   b) Transformation
   c) Transacylation
   d) Transduction

12) Bacteria can communicate by releasing _____ to gauge their population density.
   a) Pigments
   b) Polysaccharides
   c) Pheromones
   d) Polypeptides

13) Major mechanism of fatty acid oxidation is _____ oxidation.
   a) Alpha
   b) Beta
   c) Omega
   d) Delta

14) Mito-chandra was discovered by _____.
   a) Griffith
   b) Pasteur
   c) Monod
   d) Eugene Kennedy

PART – II

Q.2 Write in detail on photosynthetic and nonphotosynthetic ETC. **14**

Q.3 Define aromatic hydrocarbons. Give an account on β-keto adipate pathway. **14**

Q.4 Write in brief on purine and pyrimidine biosynthesis. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Group translocation
b) Oxidative phosphorylation
c) Omega oxidation of Alkanes

Q.6 **Write short notes on any TWO of the following:** **14**
a) Active transport
b) Anapleurotic reactions of TCA cycle.
c) β–oxidation of Alkanes

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Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Microbiology
MEDICAL MICROBIOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.
4) Answer to the two parts should be written in same answer book.

PART – I

Q.1 Rewrite the following sentences by selecting correct answer from given alternatives:- **14**

1) Toxins acting on Nervous System are called _____.
   a) Enterotoxin b) Endotoxin
   c) Neurotoxin d) Haemolysin

2) Study of spread, causative agent and whole disease cycle is called _____.
   a) Epidemiology b) Serology
   c) Immunology d) Mycology

3) _____ is an anaerobic infection.
   a) Malaria b) Cholera
   c) Typhoid d) Tetanus

4) Streptomycin inhibits _____ synthesis in bacteria.
   a) Cell wall b) DNA
   c) RNA d) Protein

5) _____ is clinical specimen for wound infections.
   a) Pus b) Blood
   c) Urine d) Stool

6) _____ is an example of continuous cell lines.
   a) Hela cell b) Epithelial cell
   c) Lung cell d) Liver cell

7) _____ is antimalarial drug.
   a) Chloramphenicol b) Erythromycin
   c) Chloroquine d) Streptomycin

8) Endotoxins are associated with _____.
   a) Gram +ve bacteria b) Gram –ve bacteria
   c) Viruses d) Protozoa

9) _____ increases virulence of bacteria.
   a) Cell wall b) Cell membrane
   c) Capsule d) Flagella

10) Respiratory tract infections are transmitted by _____.
   a) Air b) Water
   c) Food d) Insects

11) Interferon is _____ substance present in blood.
   a) Antibacterial b) Antifungal
   c) Antiprotozoal d) Antiviral

12) Period between entry of pathogen and appearance of symptoms is called _____ period.
   a) Disease b) Symptom
   c) Incubation d) Recovery

13) Spreading of pathogen in body is called _____.
   a) Inhalation b) Entry
   c) Virulence d) Invasion

14) Chemotherapy is used for _____ of diseases.
   a) Curing b) Prevention
   c) Transmission d) Detection

PART – II

Q.2 Describe in detail Epidemiology of diseases. **14**

Q.3 Describe in detail Anaerobic infections. **14**

Q.4 Write an essay on chemotherapy. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Serodiagnosis
b) Animal Tissue Culture
c) Microbial Toxins

Q.6 **Write short notes on any TWO of the following:** **14**
a) Japanese encephalitis
b) AIDS associated diseases
c) Bacterial resistance to humoral defense

SLR-UQ-539

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Mar/Apr-2018
Microbiology
MOLECULAR BIOLOGY AND GENETIC ENGINEERING

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.
4) Answer to the Part I and Part II are to be written in same answer booklet only.

Part – I

Q.1 Rewrite the sentence by choosing correct alternative from the following:- 14

1) Amplification of plasmids is carried out by _____.
   a) Penicillin b) Streptomycin
   c) Chloramphenicol d) Tetracycline

2) A cloning vector consisting of CoS site inserted in a plasmid used to clone DNA fragment of lambda phage is _____.
   a) phage mid b) cosmid
   c) plasmid d) YAC

3) _____ is Tumor inducing plasmid.
   a) pBR322 b) Ti
   c) PUC19 d) PUC18

4) Bioremediation is _____.
   a) Use of genetically engineered organism in pharmaceutical industry
   b) Biological control
   c) Biopurification of environment
   d) Both b & c

5) _____ is produced through rDNA technology.
   a) Insulin b) Penicillin
   c) Polio vaccine d) Azydothymidine

6) Southern blotting technique used to separate _____.
   a) DNA b) RNA
   c) protein d) amino acids

7) The role of plasmid in conjugation was first described in _____.
   a) Pseudomonas b) E. coli
   c) Rhizobium d) pneumonococcus

8) Genetic engineering involve _____.
   a) conjugation b) cloning
   c) mutations d) deamination

9) Genetic modification brought about by a virus in bacteria is known as _____.
   a) transformation b) transduction
   c) conjugation d) transfection

10) _____ is called the 'Natural Genetic Engineer'.
a) Azotobacter b) Pseudomonas
c) Agrobacterium d) Rhizobium

11) _____ enzyme is called as Molecular scissor.
a) Restriction endonuclease b) helicase
c) ligase d) exonuclease

12) The PCR is used to _____.
a) amplify a small amount of DNA b) cleave bacterial plasmids
c) seal sticky ends d) identify target plasmids

13) Genetic modification brought about by a cell to cell contact in bacteria is known as _____.
a) transformation b) transduction
c) conjugation d) transfection

14) Restriction endonucleases are obtained from _____.
a) bacteria b) all prokaryotic cell
c) bateriophages d) plasmid

Part – II

Q.2 What is recombination? Describe in detail Gene transfer in bacteria with reference to transformation, transduction and conjugation. **14**

Q.3 What are Vectors? Discuss in detail how they are significant in Genetic engineering? **14**

Q.4 **Write short answer on any two of the following:** **14**
a) Briefly describe theories of Oncogenesis.
b) Discuss in detail chemical and biological mutagenic agents.
c) Explain in detail screening of recombinants.

Q.5 **Write in short on any Two of the following:** **14**
a) Briefly describe methodology and applications of Protein Engineering.
b) Comment on "synthesis of low molecular weight compounds by metabolic engineering"
c) Justify the statement "nucleic acid hybridization is best tool in bacterial taxonomy.

Q.6 **Write short notes on any Two of the following:** **14**
a) Restriction endonuleases
b) Applications of Genetic engineering
c) Insertion of recombinant DNA

SLR-UQ-548

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Microbiology
PHARMACEUTICAL MICROBIOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.
4) Answer to the Part I and Part II are to be written in same answer booklet only.

Part – I

Q.1 Choose the correct alternative given in the bracket. **14**

1) Aminoglycoside antibiotic inhibits _____.
   a) Protein synthesis
   b) Neuromuscular blockade
   c) DNA gyrase susuceptability
   d) Not good oral absorption but high first pass metabolism

2) Rifampicin inhibits the growth of _____.
   a) Hepatic microsomal enzymes b) DNA synthesis
   c) Mycobacteria d) RNA synthesis

3) Broad spectrum antibiotics are developed through _____.
   a) Erythromycins b) Cephalosporin
   c) Tetracyclines d) Penicillin

4) Glassware used to measure 24 hrs urine volume is a _____.
   a) Volumetric flask b) Beaker
   c) Graduated flask d) Safety bulb

5) _____ reagent is not routinely used to preserve tissues.
   a) Formic acid b) Zenkers fluid
   c) Bouins fluid d) 10% formalin

6) Penicillin is a _____.
   a) Primary metabolite b) Secondary metabolite
   c) Tertiary metabolite d) None of these

7) _____ do not inhibit nucleic acid synthesis.
   a) Norfloxacillin b) Chloramphenicol
   c) Trimethoprim d) Rifampicin

8) Vancomycin is _____.
   a) Excreted by glomerular filtration b) Inhibit protein synthesis
   c) Is well absorbed from GTI d) None of these

9) _____ rapidly inhibit the incorporate of thymine into macromolecules of sensitive cells.
   a) Chloramphenicol b) Penicillin
   c) Rifamycin d) Ciprofloxacin

10) _____ is not used in *Pseudomonas* infections.
a) Cefoperazone b) Imipenem
c) Penicillin d) Gentamycin

11) Macrolide antibiotics _____.
a) Are not used except for serious infection
b) Inhibit the 50s ribosomal subunit
c) Are bactericidal
d) Are inactivated by beta-lactamases

12) The best medium for the production of penicillin is _____.
a) Sulfate waste liquor b) Nutrient agar
c) Corn steep liquor d) Whey

13) _____ is a second generation cephalosporin.
a) Cefaclor b) Ceflazidime
c) Cepholexin d) Cefotaxime

14) _____ is not semisynthetic penicillin.
a) Procain penicillin b) Ampicillin
c) Cloxacillin d) Carbenicillin

Part – II

Answer any four questions from the following.

Q.2 What are antifungal antibiotics? Discuss in detail mode of action. **14**

Q.3 Explain in detail aminoglycosides antibiotics with mechanism of action. **14**

Q.4 Describe in detail Molecular Principles of drug targeting and add a note drug delivery system in gene therapy. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) What is Immobilization? Explain with procedures for pharmaceutical industry.
b) What is Good manufacturing Practices (GMP)? Explain its importance in pharmaceutical industry.
c) Describe briefly Quality assurance and quality management in pharmaceutical industry.

Q.6 **Write short notes on any Two of the following:** **14**
a) Explain in detail application of microbial enzymes in pharmaceuticals.
b) Define biosensors. Explain its application in pharmaceutical industry.
c) Describe in detail action of antibiotics on protein synthesis.

SLR-UQ-549

Seat No.	

Set P

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Microbiology
FOOD AND DAIRY MICROBIOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.
4) Answer to the Part I and Part II are to be written in same answer booklet only.

Part – I

Q.1 Rewrite the following sentences by selecting the correct answer from given alternatives:- **14**

1) _____ is a popular hard-pressed Cheese variety which is ripened for 3 to 12 months.
   a) Brick b) Cheddar
   c) Blue d) Cottage

2) Acetaldehyde is the major flavor compound in _____.
   a) Cheese b) Yoghurt
   c) Kefir d) Kumiss

3) Food poisoning from Khoa is due to heat stable toxin produced by _____.
   a) Streptococcus Lactis b) S. aureus
   c) Entero bacter d) Salmonella

4) Milk minus _____ is called milk plasma.
   a) Fat globules b) Water
   c) Calcium d) Lactose

5) Apple like flavor of cream is because of _____.
   a) Streptococcus lactis b) Pseudomonas fragi
   c) Bacillus cereus d) Alcaligenes viscolactis

6) Term 'Eye formation' is related to _____.
   a) Skyr b) Basundi
   c) Swiss cheese d) Yoghurt

7) Malty flavor produced by S. Lactis var Maltigenes in milk is due to the production of _____.
   a) Indole b) Benzyle mercaptan
   c) Esters d) Aldehydes

8) Aflatoxicosis is caused by _____.
   a) Brucella abortus b) Salmonella enteritidis
   c) Aspergillus flavus d) Streptococcus pyogenes

9) _____ constitute more than 98% of the milk fat.
   a) Cholesterol b) Phospholipids
   c) Triglycerides d) Diglycerides

10) Summer mastitis is caused by _____.
a) Clostridium botulinum
b) Streptococcus lactis
c) Corynebacterium pyogenes
d) Brucella abortus

11) _____ usually predominate during cold storage of sweet cream butter.
a) Streptococci
b) Pseudomonas
c) Bacilli
d) Micrococci

12) The ripening of cream _____ the churning time during butter making.
a) Increases
b) Inhances
c) Reduces
d) Maintain

13) _____ is the acid alcohol fermented milk product.
a) Yoghurt
b) Kumiss
c) Srikhand
d) Bulgarian sour milk

14) The total solid content in the concentrated yoghurt is approximately _____%.
a) 24
b) 2
c) 4
d) 42

PART – II

Attempt any four questions:- **14**

Q.2 Write an essay on bacterial food borne infections.

Q.3 Write an essay on manufacture of Cheese. **14**

Q.4 Describe in detail quality control and safety assurance in dairy industry. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Explain microbial spoilage of fruits and vegetables.
b) What are the principles of food preservation? Explain food preservation by chemical preservatives.
c) Explain production and defects in Jilebi and Dhokla.

Q.6 **Write short notes on any Two of the following:** **14**
a) Canned foods
b) Chemical analysis of food
c) Bulgarian sour milk

SLR-UQ-550

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Microbiology
PRINCIPLES OF BIOINSTRUMENTATION AND TECHNIQUES

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part I, Question 1 is compulsory.
2) Answer any 4 questions from Part II.
3) Figures to the right indicates full marks
4) Answer to the Part I and Part II are to be written in same answer booklet only

Part – I

Q.1 Rewrite the sentence by choosing correct alternative from the following: 14

1) _____ microscopy sample interact with the wavelength of light to produce high contrast image without need of dye and no damage to the sample
   a) Conventional bright filed light microscopy
   b) Electron Microscopy
   c) Phase contrast microscopy
   d) Fluorescence microscopy

2) In ion exchange chromatography, if protein is stable at values below the isoelectric point, _____ exchanger should be used.
   a) Anion b) Cation
   c) Mixed d) All of these

3) The GC trace obtained after an experiment is called _____.
   a) Chromatograph b) Chromatogram
   c) Chromatophore d) Graph

4) In 2D gel electrophoresis the final gel separates the proteins on the basis of _____
   a) pI and MW b) pH and Molarity
   c) Charge and MW d) Charge and pI

5) For creating pH gradient in IEF _____ are used.
   a) Ampholytes b) SDS
   c) Polyacrylamides d) Detergents

6) In NMR when nuclei are placed in magnetic field, all the random spins_____.
   a) Stop
   b) Changed in reverse directions
   c) Align with the magnetic field
   d) Rotate 90°C away from the induced field

7) Electrons of Scanning Electron Microscope are reflected through _____
   a) Glass funnel b) Specimen
   c) Metal-coated surfaces d) Vacuum chamber

8) Magnification of light microscope is _____
   a) 1500X b) 2000X
   c) 1000X d) 2500X

9) Affinity chromatography deals with the _____
   a) Specific binding of a protein constituent for another molecule
   b) Protein – protein interaction
   c) Protein – carbohydrate interaction
   d) Protein – lipid interaction

10)_____ are considered to be the lowest form of Electromagnetic radiation?
   a) IR radiation
   b) Micro waves
   c) UV radiation
   d) Radio waves

11)_____ is a source used in spectroscopy.
   a) LASER
   b) Tube light
   c) Sodium vapour lamp
   d) Tungsten lamp

12)_____ is the formula for pH calculation.
   a) log10[H+].
   b) –log10[H+].
   c) log2[H+].
   d) –log2[H+].

13)Why is the computer necessary in Fourier Transform Spectrometer?
   a) To display the detector output
   b) To process the detector output
   c) To determine the amplitude
   d) To determine the frequency

14)_____ sensor is used in ESR spectrometer?
   a) Hall-effect sensor
   b) Load cell
   c) Strain gauge
   d) Bourdon gauge

Part – II

Q.2 What is the principle of flow cytometry? Explain in detail working of flowcytometry and comment on its applications. **14**

Q.3 State Beer and Lambert's law. Explain the working of U.V. – Visible spectrophotometer and give its applications. **14**

Q.4 Which factor affects electrophoretic mobility of molecule? Explain principle and working of SDS-PAGE. **14**

Q.5 **Write short answer (Any Two)** **14**
a) Rate zonal and Isopycnic density gradient
b) Fluorescence Microscopy
c) Principle and application of ion exchange chromatography

Q.6 **Write short answer (Any Two)** **14**
a) Explain western blotting technique and give its significance.
b) Comment on method of freeze etching and freeze fracturing.
c) Comment on HPLC.

SLR-UQ-551

Seat No.	

Set P

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Microbiology
HEALTH CARE AND DIAGNOSTIC MICROBIOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.
4) Answers to Part-I and Part-II are to be written in same answer booklet only.

PART - I

Q.1 Rewrite the sentences after choosing correct answer from the given alternatives:- **14**

1) _____ causes ADP ribosylation of elongation factor 2 leads to inhibition of proteins synthesis in target cells.
   a) Diphtheria toxin b) Botulinum toxin
   c) *Escherichia coli* endotoxin d) Erythrogenic toxin

2) Which of the following antibiotic affect protein synthesis
   a) Actinomycin D b) Chloramphenicol
   c) Sulphonamides d) Vancomycin

3) Which of the following is NOT true for exotoxins?
   a) The exotoxins can work by binding and entering the host cell
   b) They can cause toxaemia
   c) They rarely have enzymetic activity
   d) They can be converted to toxoids

4) Chloramphenicol antibiotic inhibits _____ synthesis.
   a) Cell wall b) Protein
   c) Membrane d) DNA

5) Scientist who discovered penicillin was _____.
   a) Alexander Flemming b) Walksman
   c) Benet d) Burnet

6) Which of the following enzyme is used in Enzyme linked immunoabsorbant assay?
   a) Protease b) Lipase
   c) Amylase d) Peroxidase

7) Endotoxins have relatively _____ potency.
   a) Low b) High
   c) Same d) No

8) Endotoxins are part of the outer membrane of the cell wall of _____.
   a) Gram positive bacteria b) Gram negative bacteria
   c) Actinomycetes d) Fungi

9) Adenylate cyclise toxin is produced by _____.
   a) Vibrio cholarae b) Bordutella pertussis
   c) Chlostrium tetani d) Corynebacterium diphtheriae

10) Which of the following bacterium produce neurotoxin which is A - B toxin cause flaccid paralysis?
   a) C. diphtheriae
   b) V. choleriae
   c) C. tetani
   d) S. aureus

11) Exotoxins are typically _____.
   a) Proteins
   b) Carbohydrates
   c) Lipids
   d) Sugars

12) Which of the following is NOT a semi synthetic chemotherapeutic agent?
   a) Ampicillin
   b) Penicillin
   c) Carbanicillin
   d) Trimethoprim

13) Gentamicin is an antibiotic produced by _____.
   a) Micromonospora
   b) Penicillium
   c) Streptoverticillium
   d) Streptromyces

14) _____ acts as folic acid intermediate antagonists.
   a) Trimethoprim
   b) Sulphonamides
   c) Both a and b
   d) None of these

PART - II

Attempt any four questions from the part II **14**

Q.2 Write in brief on “Mechanism of action of antibiotics inhibiting protein synthesis”.

Q.3 Write in short on “Use of antigen antibody reaction used in medical diagnosis”. **14**

Q.4 Write in detail on “Immunohistochemistry (IHC) and agglutination reaction”. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Various microbial enzymes causing antibiotic resistance in bacteria.
b) Florescence In Situ Hybridization (FISH)
c) Adhesion and invasion

Q.6 **Write short notes on any Four of the following:** **14**
a) Antibiotic sensitivity testing by disc and MIC method
b) Differentiate between Endotoxins and Exotoxins
c) Polymerase chain reaction and its use in diagnosis of disease.
d) Action of Cycloheximide
e) What is Gradient plate technique? Write its application.
f) What is FDA?