SLR-MQ-579

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017
Microbiology
CYTOLOGY AND TAXONOMY OF MICROORGANISMS

Day & Date: Thursday, 16-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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) Part - I and Part - II, should be written to same answer book.

Part - I

Q.1 Rewrite the sentences by choosing correct answer from given alternatives: 14

1) _____is opportunistic pathogen in domestic animal.
   a) Actinomycetes bovis b) Streptomyces griseus
   c) Penicillium notatum d) Rhizobium

2) Peptidoglycan is component of bacterial_____.
   a) Cell membrane b) Flagella
   c) Capsule d) Cell wall

3) _____forms conjugation tube during conjugation.
   a) Flagella b) Sex pili
   c) Capsule d) Slime layer

4) _____ribosome is present in bacteria.
   a) 805 b) 605
   c) 705 d) 405

5) In archaebacterial cell membrane fatty acids are linked to glycerol molecules by_____ linkage
   a) Ester b) Phosphodiester
   c) Peptide d) Ether

6) Ag-Ab reactions are used for _____classification.
   a) Biochemical b) Serological
   c) Morphological d) Cultural

7) _____are photosynthetic bacteria.
   a) Cynobacteria b) Actinomycetes
   c) Protozoa d) Rickettsia

8) _____is structural gone for flagellum.
   a) Fla b) Mot
   c) H d) K

9) Lichens reproduce by_____
   a) Conidia b) Sporangia
   c) Soredia d) Oidia

10) _____acts as endotoxin in Gram negative cell wall.
   a) Peptidoglycan b) Lipid
   c) Protein d) Lipopolysaccharide

11) Mycorrhiza is symbiotic association between _____and root system of higher plants.
   a) Algae b) Fungus
   c) Bacteria d) Viruses

12) _____increases virulence in bacteria.
   a) Flagella b) Cell wall
   c) Pili d) Capsule

13) In Proteus vulgaris, vulgaris indicates the name of_____
   a) Species b) Genus
   c) Family d) Order

14) _____does not contains cell wall.
   a) Bacteria b) Mycoplasma
   c) Algae d) Protozoa

Part - II

Q.2 Describe in detail bacteria cell membrane. **14**

Q.3 Write an essay on Bacterial classification. **14**

Q.4 Describe the general characteristics and classification of Actinomycetes. **14**

Q.5 **Write short answers Any Two.** **14**
a) Bacterial flagella.
b) Molecular architecture of Mycoplasma.
c) Cell division and differentiation of Azotobacter.

Q.6 **Write short answers Any Two.** **14**
a) Cell wall of Gram positive bacteria.
b) General characteristics of fungi.
c) Lichens and Mycorrhiza.

SLR-MQ-580

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017
Microbiology
MICROBIAL CHEMISTRY AND ENZYMOLOGY

Day & Date: Saturday, 18-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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 lebelled diagrams wherever necessary.

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

1) _____protein is said to form parallel β- pleated sheets.
   a) Gelatin b) Casein
   c) Albumin d) Keratin

2) All enzymes are protein with exception of _____-
   a) RNA ase b) RNA polymerase
   c) Liagases d) Ribozymes

3) Cytochromes are _____
   a) Lipids b) Fats
   c) Proteins d) Lipoproteins

4) Zwitter ions are _____in nature
   a) Acidic b) Basic
   c) Neutral d) Amphipathic

5) Emulsification is property of _____when they are added in water
   a) Fats b) Carbohydrates
   c) Proteins d) Amino acids

6) Deficiency of vitamin c causes _____
   a) Scurvy b) Beri-beri
   c) Rickets d) Xerophthalmia

7) The amino acids containing additional COOH group in the side chain are____ amino acids.
   a) Basic b) Neutral
   c) Acidic d) Hemoglobin

8) _____is not globular protein.
   a) Ovalbumin b) Collagen
   c) Pancreatic2-anylase d) Hemoglobin

9) C_{18} fatty acids without double bonds are called _____
   a) Octadeconyl b) Octadecanoic acid
   c) Octadaconylic acid d) Octadecom

10) Red colour of heme is due to _____
   a) Photoporphyrin b) Photophyrin
   c) Photophosphorin d) Photophosphoserine

11) Iron Porphyrin groups are present in the structure of _____
   a) Chlorophyll b) Carotenoids
   c) Phycobili proteins d) Cytochromes

12) The term glycan is used to denote _____
   a) Monosaccharide b) Disaccharide
   c) Polysaccharide d) Trisaccharide

13) _____serve as chief storage form of energy in cells.
   a) Lipids b) Proteins
   c) Vitamins d) Porphyrins

14) Bacteriorhodospin is bacterial membrane _____
   a) Lipid b) Carbohydrate
   c) Teichoic acid d) Protein

PART - II

Q.2 Write any essay on models proposed to explain the mechanism of enzyme functioning (MWC & KNF). **14**

Q.3 Write in detail on Lineweaver – Burk & Eadie – Hofstee's work. **14**

Q.4 Give an account of types of fatty acids and nomenclature of fatty acids. **14**

Q.5 **Write short answers Any Two** **14**
a) Triose phosphate isomerase
b) Water soluble vitamins.
c) Monomeric and oligomeric enzyme

Q.6 **Write short answers Any Two** **14**
a) Reverse turns and helix coil transition
b) Isoenzymes.
c) Chymotrypsin and lysozyme.

SLR-MQ-581

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017
Microbiology
RECENT TRENDS IN VIROLOGY

Day & Date: Tuesday, 21-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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) Antigenic variation is most extensive in _____virus.
   a) Mumps b) influenza
   c) herpes d) measles

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

3) In the reproductive **'λ'** cycle the gene N product acts as _____
   a) Repressor b) Anti repressor
   c) Anti terminator d) Terminator

4) _____is a DNA containing Oncogenic virus.
   a) Rous Sarcoma virus b) Leukemia virus
   c) Epstein-Barr virus d) Mammary tumor virus

5) Hemagglutination assay is suitable for enumeration of_____ viruses.
   a) Nacked b) Enveloped
   c) Complex d) All

6) Terminal protein of 55 k is attached to the 5' end of the DNA of _____virus.
   a) Influenza b) Pox
   c) Polio d) Adeno

7) The incubation period of viral hepatitis type A is _____.
   a) 360 to 900 days b) 15 to 45 days
   c) 5 to 10 days d) 3 to 5 days

8) Which of the following properties describes the nature of viruses?
   a) They multiply inside and outside cells.
   b) They are parasites at the genetic level.
   c) They are not dependent on the host cells' protein synthesizing apparatus
   d) They are not dependent of the host cells' energy-yielding apparatus

9) _____crystallized the TMV first time.
   a) Hershey b) Chase
   c) Stanley d) Sanger

10) ***E.coli*** K-12 is host for_____ bacteriophage.
   a) T4 b) T1
   c) λ d) T3

11) The ability of an animal virus to infect a cell depends primarily on_____.
   a) Whether or not the host cell has a nucleus.
   b) The enzymatic activity of the host cell.
   c) The types of viral nucleic acid.
   d) Presence of receptor sites on the cell membranes.

12) _____is the BEST description of all types of viruses that have an RNA genome.
   a) They always contain a gene encoding RNA- dependent RNA or DNA polymerase and have higher mutation frequencies relative to viruses containing DNA genomes.
   b) The viral genomes can always act as mRNA.
   c) The virions of RNA viruses always contain an RNA-dependent RNA or DNA polymerase protein.
   d) They are always single stranded.

13) In Pock assay, viral dilution is inoculated onto the surface of _____.
   a) Allantoic cavity b) Amniotic cavity
   c) Yolk sac d) Chorioallantoic membrane.

14) The term viroid was discovered by_____.
   a) Diener b) Puschner
   c) Boin d) Baltimore

PART – II

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

Q.3 Discuss in detail the characteristics of transformed cells by cancer producing viruses. **14**

Q.4 **Write short answer on any two of the following:** **14**
a) Describe in detail ultra structure, morphology of viruses.
b) Describe in detail cultivation of animal viruses.
c) What are interferons? Describe their mode of action and its clinical use.

Q.5 **Write short answers Any Two:** **14**
a) Draw labeled diagram of the TMV and add a note on its pathogenesis and control.
b) Briefly describe emerging viral infections.
c) Describe in detail satellite viruses.

Q.6 **Write short answers Any Two:** **14**
a) Briefly describe ***λ*** phage.
b) Briefly describe classification and nomenclature of animal viruses.
c) Describe in detail assay of viruses.

SLR-MQ-582

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017
Microbiology
MICROBIOLOGICAL TECHNIQUES AND SCIENTIFIC WRITING

Day & Date: Thursday, 23-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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 are to be written in same answer booklet only.

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

1) Which of the following is used as binding agent in TLC _____?
   a) Calcium Chloride b) Calcium Sulfate
   c) Cobalt Chloride d) Magnesium Chloride

2) Iron exchange chromatography is based on_____
   a) Partition b) Adsorption
   c) Electrostatic attraction d) Electrical mobility

3) Electrophoresis technique for the separation of charged molecules was developed by_____.
   a) Tiselius b) Tswett
   c) Ramachandran d) Sanger

4) Which of the following is used to visualize electrophoresed molecules_____
   a) Silver staining b) Ethidium bromide
   c) CBB-R d) All of the above

5) Electophoretic mobility is affected by_____
   a) Shape of molecule b) Size of molecule
   c) Charge on the molecule d) All of the above

6) Svedberg is a unit of _____
   a) Gravitational force b) Sedimentation rate
   c) Retention time d) Elution rate

7) Which gel is commonly used for the separation of DNA molecules_____
   a) Agar b) Poly Acrylamide
   c) Agarose d) Ethidium bromide

8) In SDS-PAGE, separation is based on_____
   a) Size b) Shape
   c) Molecular weight d) Density

9) Diethy laminoethyl cellulose (DEAE-Cellulose) is an example of_____
   a) Anion exchanger b) Cation Exchanger
   c) Both a) & b) d) None of the above

10) In scientific writing, ideally length of the sentence should be_____
   a) 5-10 words b) 12-15 words
   c) 35-40 words d) 30-35 words

11) Most commonly used font face in slides for oral presentation is _____
   a) Times New Roman b) Helvetica
   c) Aerial d) Courier New

12) While preparing manuscript, Discussion section should be presented in_____
   a) Present Tense b) Past Tense
   c) Future Tense d) None of these

13) What is the first step in a scientific investigation?
   a) Asking questions b) Drawing a conclusion
   c) Making observations d) Doing research

14) Summary of the research article is_____
   a) Conclusion b) Abstract
   c) Discussion d) None of these

PART - II

Answer any four questions from the following.

Q.2 Explain affinity Chromatography with suitable example. **14**

Q.3 Write an essay on IMRAD system of scientific writing. **14**

Q.4 Explain briefly SDS-PAGE technique for protein separation **14**

Q.5 **Write short answers Any Two** **14**
a) Briefly describe TEM
b) How to make a Power Point Presentation
c) Describe Briefly Molecular markers in electrophoresis

Q.6 **Write short answers Any Two** **14**
a) Paper Chromatography
b) 2D- electrophoresis
c) Briefly describe Centrifugation

SLR-MQ-584

Seat No.		Set	P

M.Sc. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
MICROBIAL GENETICS

Day & Date: Friday, 17-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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) Sometimes you can see mRNA molecules growing in both directions of dsDNA of bacteria chromosome; it is due to fact that_____
   a) RNA polymerase can work in both directions.
   b) Opposite strands of a DNA sequence always code for two different genes.
   c) Genes can be transcribed from opposite strands.
   d) None

2) Bacteria can decode their mRNA with as few as_____.
   a) 32 t RNAs. b) 30 t RNAs.
   c) 61, tRNAs. d) 20 t RNAs.

3) The replicon encoding genes essential for the cell survival is called as _____.
   a) Genome b) Chromosome
   c) Codon d) Proteome

4) Synthesis of RNA primers for DNA chain elongation is carried out by_____
   a) RNA polymerase b) RNA primase
   c) DNA polymerase d) RNA transcriptase

5) Model for replicative transposition was proposed by_____.
   a) McClintock b) Shapiro
   c) Luria d) Dupra

6) SOS response brings to halt _____synthesis,
   a) DNA b) RNA
   c) Protein d) Carbohydrate

7) pBR 322 is _____
   a) an original plasmid b) modified plasmid
   c) viral genome d) a transpoons

8) The methionine carried by Archaeal initiator tRNA is _____.
   a) N-formylated, b) non-Nformylated
   c) N-methylated d) a & b

9) Ti plasmid are found in _____
   a) *E-coli* b) *Streptococcus pneumoniae*
   c) *Agrobacterium tumifacians* d) *Pseudomonas spp*.

10) DNA replication by semiconservative mode in E.coli was experimentally proved by_____
   a) Watson and Crick b) Meselson and Stahl
   c) Zinder and Lederberg d) Delbruck & Delbruck

11) E-coli polunucletide ligase requires _____for its activity.
   a) FAD b) FMN
   c) NAD d) NADP

12) The coding sequences on the eukaryotic genes are termed as_____
   a) introns b) exons
   c) split gens d) interrupted genes

13) In *Archaeae* translation is matching more to_____
   a) Bacteria b) Yeasts
   c) Eukaryotes d) Mitochondria

14) Helix unwinding during replication is accomplished by_____
   a) DNA helicases b) DNA gyrase
   c) DNA polymerase I d) DNA polymerase II

PART – II

Q.2 Write an essay on translation in prokaryotes. **14**

Q.3 Explain in detail DNA damage and repair **14**

Q.4 What is transcription? Explain the transcription process in prokaryotes. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Explain the techniques and applications of DNA finger printing.
b) Evidence of Nucleic acid as genetic material.
c) Describe operon model with reference to arabinose operon.

Q.6 **Write short notes on any TWO of the following:** **14**
a) Chromosome walking.
b) Give the brief account of nomenclature, classification, properties and types of plasmids.
c) Post tranlational processing in eukaryotes.

SLR-MQ-585

Seat No.		Set	P

M.Sc. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
MICROBIAL ECOLOGY AND DIVERSITY

Day & Date: Monday, 20-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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) The importance of ecosystem lies in_____
   a) CO_2 production b) Flow of energy
   c) Bacterial degradation d) Oxygen production

2) The denitrifying bacteria convert nitrate to _____through nitrite and nitrous oxide
   a) NO_3 b) N_2O
   c) N_2 d) NH_3

3) _____a phylogenic domain of prokaryotes consists of halophiles and extreme thermopiles.
   a) Archaebacteria b) Protozoa
   c) Actinomycetes d) Actinorhiza

4) Fe_3O_4 particles are present in _____bacteria.
   a) Acidophilic b) Magnetotactic
   c) Alkaliphilic d) Xerophiles

5) *Pseudomonas putida* is used for _____
   a) Methanogenesis b) Biomagnifications
   c) Bioremediation d) N_2fixation

6) LUX gene is responsible for _____
   a) N_2fixation b) Biolumiscence
   c) Methanogenesis d) Nitrification

7) The organisms degrading pesticides are called _____bacteria.
   a) Acidophilic b) Xerophilic
   c) Xenobiotic d) Endolithic

8) Bioluminescence is the result of mutualistic association between_____
   a) Bacteria and fungi
   b) Luminescent bacteria and marine invertebrates
   c) Animal and viruses
   d) Algae and fungi

9) Taq polymerase enzyme used in PCR is produced by _____
   a) *Bacillus thermophilus*
   b) Thermos aquaticus
   c) *Bacillus* subtilis
   d) Thermoplasma

10) _____are the free living aerobic non photosynthetic nitrogen fixing bacteria.
   a) Rhizobium
   b) Azotobacter
   c) Anaebena
   d) Frankia

11) Methanopyrus kandleri is an example of _____
   a) Halophile
   b) Hyperthermophile
   c) Psychrophile
   d) Barophile

12) Sulphur is oxidized to sulphate or H_2SO_4 by _____
   a) *Bacillus*
   b) *Thiobacillus thioxidans*
   c) *Nitrobacter*
   d) *Staphylococcus*

13) _____is an example of lichens.
   a) Permelia
   b) Trichospor nigrecans
   c) Hyphomonas
   d) Pyrolobus fumarii

14) *Photo bacterium shewanella* is an example of _____
   a) Xerophile
   b) Barophile
   c) Thermophile
   d) Halophile

PART – II

Q.2 Explain in detail "Role of micro organisms in biological nitrogen fixation." **14**

Q.3 Give detail account of Extremophiles and add a note on its role in ecosystem. **14**

Q.4 Write an essay on Microbial Ecology and ecosystem management. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Concept of Autotrophy
b) Identification of uncultured organisms
c) Microbial fossils

Q.6 **Write short notes on any TWO of the following:** **14**
a) General characters of Archaeobacteria.
b) Describe in detail plant microbe interactions.
c) Briefly describe population explosion.

SLR-MQ-586

Seat No.		Set	P

M.Sc. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
MICROBIAL PHYSIOLOGY AND METABOLISM

Day & Date: Wednesday, 22-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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) Draw neat and labeled diagram wherever required.

PART – I

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

1) Bacteriorhodopsins are present in_____ of photosynthetic halo bacteria.
   a) Cytoplasm b) Cell wall
   c) Cell membrane d) Mesosome

2) Chlorobium vesicles are surrounded by non unit membrane that consist of a _____.
   a) Galacto lipids b) Proteins
   c) Fats d) Sugars

3) Precursor for fatty acid biosynthesis is _____
   a) Malonyl coA b) Citryl coA
   c) Succinyl coA d) Acctyl coA

4) Cytochromes contain_____ as a prosthetic group
   a) Pyrrol b) Phytol
   c) Iron Porphyrin d) FAD

5) _____ATP moles are generated in TCA cycle
   a) 8 b) 10
   c) 24 d) 38

6) Cytochromes are _____
   a) Lipids b) Lipoproteins
   c) Proteins d) Fats

7) In biosynthesis purine and pyrimidine_____ is key compound.
   a) Ribose b) Ribose-s Ⓟ
   c) Ribuloses-Ⓟ d) Phosphoribosyl pyrophosphate

8) The function of phosphotransferase system is transport of ____across cell membrane.
   a) Amino acids b) Na^+
   c) K^+ d) Sugars

9) _____is Steriospecific
   a) Facilitated diffusion b) Simple diffusion
   c) Passive diffusion d) Active transport

10) In ATP linked reaction_____ is synthesized from glutamate and ammonia.
a) Aspartate b) Proline
c) Serine d) Glutamine

11) Emulsification is property of_____ when, they are added in water.
a) Fats b) Carbohydrates
c) Proteins d) Amino acids

12) In anaerobic respiration terminal electron acceptor is_____
a) O_2 b) NO_3
c) Pyruvic acid d) Succinic acid

13) Cytochrome oxide is nothing but____
a) Cyt a a_3 b) Cyt C_1 C_2
c) Cyt b c d) Cyt C_2C_3

14) In _____ATP is synthesized from ADP and inorganic Ⓟ.
a) Heterolactic fermentation b) Photosynthesis
c) Homolactic fermentation d) Oxidative phosphorylation

PART – II

Q.2 Give an account of different permeation systems in E-coli and their significance. **14**

Q.3 Write an essay on mitochondrial ETC. **14**

Q.4 Give brief account of biosynthesis of saturated fatty acids. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Microbial hormones & their significance.
b) Vale rate pathway
c) Microbial response to osmotic stress.

Q.6 **Write short notes on any TWO of the following:** **14**
a) Shuttle systems across cell membrane.
b) Alkanes, structure & properties.
c) Amphibolic reactions of TCA cycle.

SLR-MQ-587

Seat No.		Set	P

M.Sc. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
MEDICAL MICROBIOLOGY

Day & Date: Wednesday, 22-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

1) Antigen binding site of antibody is called _____
   a) Fab b) Fc
   c) Hapten d) Paratope

2) _____is responsible to increase virulence.
   a) Amylase b) Caseanase
   c) Coagulase d) Cellulose

3) _____is clinical sample for throat infections.
   a) Blood b) Sputum
   c) Urine d) Stool

4) _____are used for prevention of diseases.
   a) Antibiotics b) Drugs
   c) Vitamins d) Vaccine

5) Antibiotics are mostly obtained from_____
   a) Viruses b) Fungi
   c) Protozoa d) Chlamydia

6) _____is associated with bacterial invasion.
   a) Collagenase b) Amylase
   c) Lysozyme d) Haemolysin

7) _____test is used for confirmation of HIV.
   a) Widal b) Weil felix
   c) Western blot d) RIA

8) Exotoxins are generally _____in nature.
   a) Lipids b) Proteins
   c) Polysaccharides d) Fats

9) _____is mostly associated with AIDS.
   a) Tuberculosis b) Appendicitis
   c) UTI d) Typhoid

10) _____is direct contact infection.
   a) Syphilis b) Cholera
   c) Typhoid d) Malaria

11) Presence of bacteria in blood is called_____.
a) Septicemia b) Bacterimia
c) Fungicide d) Antibiotic

12) Penicillin inhibits _____synthesis.
a) Cell membrane b) DNA
c) RNA d) Cell wall

13) _____is antiviral substance present in blood.
a) Lysozyme b) Interferon
c) Haemolysin d) Coagulase

14) Fungal infections are called _____infections.
a) Mycotic b) Parasitic
c) Protozoal d) Malarial

PART – II

Q.2 Describe in detail Animal Tissue culture. **14**

Q.3 Write an essay on microbial Toxins. **14**

Q.4 Describe in detail pathogenic fungi. **14**

Q.5 Write in short on any Two of the following: **14**
a) Infections disease cycle.
b) Virulence of microorganisms.
c) Helicobacter pylori.

Q.6 Write short notes on any TWO of the following: **14**
a) Dental caries.
b) Enzymes in medical diagnosis & therapy.
c) Dengue fever.

SLR-MQ-592

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
MOLECULAR BIOLOGY AND GENETIC ENGINERRING

Day & Date: Thursday, 16-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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) _____is a Tumor inducing plasmid.
a) pBR322 b) Ti
c) PUC19 d) PUC18

2) Southern blotting technique used to separate_____.
a) DNA b) RNA
c) Protein d) Lipid

3) The presence of a plasmid in a bacterial culture is usually determined by _____.
a) Blue white screening
b) Growth in the presence of antibiotic
c) A restriction enzyme digest
d) Agarose gel electrophoresis

4) Genetic modification brought about by a virus in bacteria is known as_____.
a) Transformation b) Transduction
c) Conjugation d) Transfection

5) Expression vectors contain a sequence known as_____.
a) A ribosome binding site b) An ori sit
c) A multiple cloning site d) An antibiotic resistance marker

6) PCR amplification cycle involves_____.
i) Denaturation
ii) Primer annealing
iii) DNA polymerization
iv) Reaction mixture containg target DNA, primer, thermostable DNA polymerase and dNTP
a) A C and D b) A B and C
c) B C and D d) A B C and D

7) _____is not a component of YAC.
a) Centromere b) Telomere
c) Origin of replication d) Cos site

8) _____molecules are sometimes called chimeric DNA.
a) cDNA b) rDNA
c) dDNA d) nDNA

9) RT-PCR means_____
   a) Reverse transcriptase polymerase chain reaction
   b) Rotating tube polymerase chain reaction
   c) Rightward template polymerase chain reaction
   d) Revolving tube polymerase chain reaction

10) _____is commercially produced by rDNA technology.
   a) Insulin
   b) Penicillin
   c) Polio vaccine
   d) Azydothymidine

11) A probe is used in_____ stage of genetic engineering.
   a) Cleaving DNA
   b) Recombining DNA
   c) Cloning
   d) Screening

12) A cloning vector consisting of CoS site inserted in a plasmid used to clone DNA of (λ) phage is_____
   a) Phage mid
   b) Cosmids
   c) Plasmid
   d) YAC

13) In _____microscopic needles are used to inject DNA into cells.
   a) Electrophoresis
   b) Microinjection
   c) Electroporation
   d) Phage bombardment

14) Recombinant DNA technology is also called as _____
   a) Biotechnology
   b) Nano biotechnology
   c) Genetic engineering
   d) Transgenic technology

PART – II

Q.2 Describe in detail the general Strategy of gene cloning. **14**

Q.3 Write short essay on Protein engineering and add a note on metabolic engineering: **14**

Q.4 **Write short answer on any two of the following:** **14**
a) What is Mutation? Discuss in detail chemical and biological mutagenic agents.
b) Applications of Genetic engineering and its legal aspects.
c) Genome libraries and cDNA libraries.

Q.5 **Write in short on any Two of the following:** **14**
a) Briefly describe nucleic acid hybridization and its applications in bacteria taxonomy.
b) Comment on ”Molecular biology of Nitrogen fixation”
c) Justify the statement “Natural bacterial recombination process helps for mutation in bacteria”.

Q.6 **Write short notes on any TWO of the following:** **14**
a) Law of DNA constancy and redundancy
b) DNA sequencing
c) Neoplastic transformation

SLR-MQ-593

Seat No.	

Set P

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
BIOPROCESS TECHNOLOGY AND FERMENTATION TECHNOLOGY

Day & Date: Saturday, 18-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

Instructions: 1) Part- I, Questions No.1 Compulsory.
2) Attempt any 4 questions from Part II.
3) Figures to the right indicate full marks.

PART - I

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

1) Micro bialy produced nucleosides and nucleotides are widely used as _____ enhancers in food.
   a) Taste b) Aroma
   c) Flavor d) Texture

2) Streptomycin is acting against _____
   a) Protozoa b) Gram+ve and Gram–ve bacteria
   c) Viruses d) Mycoplasma

3) Xanthan is produced by using _____organism.
   a) Xanthomonas campestris b) Xanthomonas citri
   c) Leuconostoc mesenteroides d) Streptococcus lentes

4) _____ technique is used for preservation of production strains.
   a) Incubation b) Lyophillization
   c) Isolation d) Pasteurization

5) In fermentor agitation of medium is done by _____
   a) Spargers b) Baffles
   c) Nozzles d) Impellers

6) _____is used as precursor for penicillin production.
   a) Lactic acid b) Acetic acid
   c) Phenylacetic acid d) Ethanol

7) _____is waste product from dairy industry.
   a) Whey b) Molasses
   c) CSL d) SWL

8) Prevention of thrombosis can be done by using_____ in medical field.
   a) Mannan b) Pullulan
   c) Xanthan d) Dextran

9) Brandy is produced by distillation of _____.
   a) Wine b) Beer
   c) Vinegar d) Ethanol

10) _____is white button mushroom.
a) A. campestris
b) A. bisporus
c) V.volvacea
d) Pleurotus spp.

11) Transformation of progesterone to 11∝-Hydroxyproges- terone is carried out by_____
a) Str-griseus
b) Piniger
c) Rhizopus nigricans
d) Curvularia lunata

12) _____is used for screening of production strains.
a) Water
b) Sewage
c) Air
d) Soil

13) _____is crude organic antifoam agent.
a) Lard oil
b) Silicon compound
c) Citric acid
d) Acetic acid

14) _____are used for toxicity testing of health care products.
a) Monkeys
b) Horses
c) Cats
d) Mice

PART - II

Q.2 Describe in detail "Downstream processing" **14**

Q.3 Explain in detail industrial production of streptomycin. **14**

Q.4 Describe in detail construction and working of Bioreactor. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Biosensors for maintaining environmental parameters.
b) Control of metabolic pathways
c) Fermentation media.

Q.6 **Write short notes on any TWO of the following:** **14**
a) Bio safety
b) Production of mushroom
c) Intellectual property rights.

SLR-MQ-594

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
IMMUNOLOGY & IMMUNOTECHNOLOGY

Day & Date: Tuesday, 21-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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) Immunity mediated by antibodies produced in the human of body fluids such as plasma or lymph is known as _____immunity
   a) Cell mediated b) Humoral
   c) Natural active d) Artificial active

2) IgE _____
   a) Is abundant in saliva
   b) Binds strongly to mast cells
   c) Cannot bind to macrophages
   d) Activates the complement cascade

3) The failure to reject or inactivate self reactive cells results in_____
   a) Autoimmunity b) Positive selection
   c) Negative selection d) Suppression

4) Contact dermatitis and allergy of infection are an example of _____ hypersensitive reaction.
   a) Type I b) Type- II
   c) Type – III d) Type – IV

5) _____is secondary lymphoid organ
   a) MALT b) Spleen
   c) Lymph node d) All of these

6) T- helper cells carry _____ molecules as its specific marker
   a) CD4 b) CD8
   c) CD9 d) CD3

7) T cell surface receptors for antigen partly recognize_____
   a) Cytokines b) MHC
   c) Antibody d) ADCC

8) The MHC is a collection of genes located on chromosome No._____ in humans
   a) 15 b) 17
   c) 6 d) None of these

9) In an autoimmune disease pernicious anaemia, antibodies are produced against-
   a) Folic acid
   b) Vitamin B12
   c) Intrinsic factor
   d) None of these

10) _____cell has maximum phagocytic activity
   a) Mast cells
   b) Basophil
   c) Monocyte
   d) Macrophage

11) MHC class I molecules are present on surface of _____
   a) Only platelets
   b) All nucleated cells
   c) Only antigen presenting cells
   d) RBCs

12) In case of cancer TNM stands for _____
   a) Tumour, Node, Metastases.
   b) Temperature, Metabolism, Nutrition.
   c) Tumour, Nerve, Metastases.
   d) Tumour, None, Metastases.

13) Cytokines _____
   a) are lymphokines
   b) are monokines
   c) help to control & regulate immune response
   d) all of these

14) Autoantibodis against acetyl - choline receptors are produced in _____
   a) Rheumatoid arthritis
   b) Myasthenia gravis
   c) Goodpasture's syndrome
   d) Pernicious anaemia

PART - II

Q.2 Write in detail on "Natural (Innate) and acquired immunity and differentiate between active and passive immunity" **14**

Q.3 Write in detail on "Major histocompatibility antigens and genes and describe methods of HLA typing" **14**

Q.4 Write essay on "Properties and Immuno regulatory role of Cytokines". **14**

Q.5 Write in short on any Two of the following: **14**
a) Application of immuno technology in diagnostic medicine.
b) Differentiate between Cancerous cell and normal cells.
c) Theories of origin of autoimmunity

Q.6 Write short notes on any TWO of the following: **14**
a) Structure and function of T cell receptors (TCR)
b) Physical and mechanical factors in immunity.
c) Immune system in vertebrate and non-vertebrate.
d) Types of lymphocytes.
e) Alpha – fetoprotein.
f) Function of lymphoid organs.

SLR-MQ-608

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
PHARMACEUTICAL MICROBIOLOGY

Day & Date: Friday, 24-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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) The destruction of all micro organisms including spores is called as_____
   a) Sanitation b) Antisepsis
   c) Sterilization d) Disinfection

2) _____is the precursor used for the production of penicillin G.
   a) Sulfate waste liquor b) Nutrient agar
   c) Corn step agar d) Phenyl acetic acid.

3) _____inhibits DNA gyrase.
   a) Penicillin b) Chloramphenicol
   c) Cefoxitin d) Tobramycin

4) _____is a second generation cephalosporin
   a) Cefaclor b) Ceflazidime
   c) Cepholexin d) Cefotaxime

5) A primarily bacteriostatic antibiotic is_____.
   a) Chloramphenicol b) Penicillin
   c) Vancomycin d) Gentamicin

6) Macroolide antibiotics_____
   a) are not used except for serious infection
   b) inhibits the 50s ribosomal subunit
   c) are bactericidal
   d) are inactivated by beta-lactamases

7) _____is not semisynthetic penicillin.
   a) Procaine penicillin b) Ampicillin
   c) Cloxacillin d) Carbenicillin

8) An externally administered chemical substance are called as_____
   a) Antibiotic b) Disinfectants
   c) Antiseptics d) Drugs

9) _____ inhibits nucleic acid synthesis.
   a) Norfloxacillin b) Chloramphenicol
   c) Penicillin d) Ampicillin

10) In pregnancy _____is safe antibiotic.
   a) Gentamycin
   b) Erythromycin
   c) Doxycycline
   d) Moxifloxacin

11) Food poisoning is mainly caused by _____
   a) *Corynebacterium diptheriae*
   b) *Clostridium rockfortae*
   c) *Clostridium tetani*
   d) *Clostridium botulinum*

12) The 50s ribosomal subunit is target for ____antibiotics
   a) Macrolide
   b) Chloramphenicol
   c) Bactericidal
   d) Antifungal

13) Treatment of autoimmune disease includes_____
   a) Metabolic control
   b) Use of anti-inflammatory drugs
   c) Use of immunosuppressive drugs
   d) All of these

14) _____rapidly inhibit the incorporation of thymine into macromolecules of sensitive cells.
   a) Chloramphenicol
   b) Pencillin
   c) Rifamycin
   d) Ciprofloxacin

PART – II

Answer any four questions from the following.

Q.2 What are multivalent subunit vaccines? Discuss in detail new vaccine technology. **14**

Q.3 Give a detailed account of Biosensors and its applications in Pharmaceuticals. **14**

Q.4 Explain in detail Microbial contamination and spoilage of pharmaceutical products with reference to sterile injectibles, non injectibles and ophthalmic preparation. **14**

Q.5 **Write in short on any Two of the following:** **14**
a) Describe in detail how the antimicrobial agents the targets.
b) What are Government regulatory practices and policies? Explain its importance in pharmaceutical industry.
c) Describe briefly Drugs delivery system gene therapy.

Q.6 **Write short notes on any TWO of the following:** **14**
a) What is Immobilization? Explain with procedures for pharmaceutical industry.
b) Describe briefly mode of action of non-antibiotic antimicrobial agents.
c) Describe in detail action of antibiotics on nucleic acid synthesis.

SLR-MQ-719

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
Microbiology
BIOENERGETICS AND MOLECULAR ENZYMOLOGY

Day & Date: Tuesday, 21-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

Instructions: 1) Part I, Q. 1 is compulsory
2) Attempt any four questions from part – II.
3) Figures to the right indicate full marks.

PART-I

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

1) The atoms of the pyrmidine ring are derived from _____.
   a) Glutamine
   b) Carbamoyl phosphate and Aspartate
   c) Glucose
   d) Glutamic acid

2) _____ is substrate specific enzyme.
   a) Hexokinase b) Thiokinase
   c) Lactase d) Decarboxylase

3) _____ are end products of aerobic respiration.
   a) Sugar &O_2 b) Amino acid and NAD+
   c) $NADH_2$ & $FADH_2$ d) CO_2, water and energy

4) The plot between reciprocal of v and [s] is known as _____ plot.
   a) Lineweaver-Burk b) Hanes
   c) Eadie d) Hofstec

5) _____ is a key intermediate compound linking glycolysis to Kreb's cycle.
   a) Pyruvic acid b) Acetyl CoA
   c) Citric acid d) Malate

6) The enzymes involved in feed back inhibition are called _____ enzymes.
   a) Allosteric b) Co
   c) Apo d) Holo

7) _____ is precursor for all sterols.
   a) Terpene b) Lipid
   c) Glycolipid d) Cholesterol

8) All enzymes are proteins with exception of _____.
   a) RNAase b) RNA polymerase
   c) RNA ligase d) Ribozyme

9) _____ are Sudanophillic granules.
   a) Glycogen b) Starch
   c) PHB d) Volutin

10) Enzymes of the _____ class are involved in synthesis of new band.
a) Transferases b) Ligases
c) Lyases d) Hydrolases

11) _____ molecules of ATP are produced by the aerobic oxidation of one molecule of glucose.
a) 38 b) 2
c) 12 d) 8

12) Enzymes are _____.
a) Thermophile b) Thermostable
c) Thermolabile d) Thermopstatic

13) The kinetic models to explain enzyme catalysed reactions was proposed in 1913 by _____.
a) Khune & Kholand b) Hanes and Edie
c) Hanes and Menten d) Michaelis & Menten

14) _____is involved in conversion of Nucleosides to nucleotides.
a) Nucloside oxidase b) Nucloside kinase
c) Nucleoside Transferase d) Nucloside reductase

PART –II

Q.2 Describe in detail TCA cycle **14**

Q.3 Discuss in detail derivation of Michaelis menten equation and its significance in Enzyme Kinetics. **14**

Q.4 Describe in detail biosynthesis of purines and Pyrmidines. **14**

Q.5 **Attempt any two of the following:-** **14**
a) EMP pathway.
b) Microbial degradation of aliphatic hydrocarbons.
c) Enzyme as biocatalyst.

Q.6 **Attempt any two of the following :-** **14**
a) Bacterial Fermentations.
b) Degradation and regulation of reserve materials.
c) Classification of Enzymes.