SLR-MQ – 396

Seat No.	

M.Sc. – I (Semester – I) Examination, 2016
GENETICS (CBCS) (New)
Cytogenetics and Genome Organization (Paper – III)

Day and Date : Saturday, 2-4-2016 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions *: 1) Section **I** is **compulsory**.*
*2) From Section **II** attempt **any four**.*
*3) **All** questions carry **equal** marks.*
*4) Figures to the **right** indicate **full** marks.*
*5) Draw **neat** and labeled diagrams **wherever** necessary.*

SECTION – I

1. A) Rewrite the following sentences by using correct alternative : **7**

1) The diameter of DNA molecule at solenoid fibre stage is _____ nm.
a) 10 b) 30 c) 70 d) 700

2) Polytene chromosomes of drosophila has 1024 DNA molecules because of _____ rounds of DNA replication.
a) Ten b) Twelve c) Nine d) Eleven

3) The smallest extra chromosomal unit for extranuclear inheritance is called _____
a) Determiner b) Plasmon
c) Gene d) Plasmagene

4) Hybrid dysgenesis is observed in P Male × M female mating type of drosophila because of _____
a) Copia elements b) As-Ds elements
c) P elements d) Alu sequences

5) _____ is not a X-linked disease.
a) Hemophilia b) Color blindness
c) Hypertrichosis d) Night blindness

P.T.O.

6) In honey bees _____ type of sex determination system is present.
   a) ZZ-ZW
   b) Haplo-diploid
   c) XX-XC
   d) XX-XY

7) LINEs are _____
   a) Large Interspersed Nuclear Sequences
   b) Long Interspersed Nuclear Sequences
   c) Long Intervening Nuclear Sequences
   d) Long Interspersed Nucleolar Sequences

B) Answer the following terms : **7**

1) What is sex chromosome ?
2) What is centromere ?
3) What is chromosome banding ?
4) What is C banding ?
5) Give different types of plasmids.
6) What are insertion elements ?
7) What are retrotransposons ?

SECTION – II

Attempt **any four** :

2. Explain the process and applications of FISH and GISH. **14**

3. Describe mitochondrial and chloroplast inheritance with suitable examples. **14**

4. Describe different types of transposable elements in prokaryotes and eukaryotes. **14**

5. Answer **any two** of the following : **14**
   1) Describe structure of lampbrush chromosome.
   2) Explain hybrid dysgenesis in drosophila.
   3) Describe structure of typical eukaryotic chromosome.

6. Answer **any two** of the following : **14**
   1) Explain Q banding of chromosomes.
   2) Describe the process of genome mapping.
   3) Describe structure of Y chromosome.

_____

SLR-MQ – 402

Seat No.	

M.Sc. (Part – I) (Semester – II) (New) (CBCS) Examination, 2016
GENETICS (Paper – I)
Regulation of Gene Expression and Developmental Genetics

Day and Date : Wednesday, 30-3-2016 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions of Section – **I** are **compulsory**.*
*2) Answer **any four** questions from Section **II**.*
3) ***All*** *questions carry **equal** marks.*
*4) Draw **neat** and labelled diagrams **wherever** necessary.*

SECTION – I

1. A) Rewrite the following sentences by choosing the correct alternative given below : **7**

1) Two exons carried on different RNA molecules can be spliced together in a process

a) trans-lysis b) trans-looping

c) trans-splicing d) cis-splicing

2) _____ decrease or eliminated transcription of regulated genes.

a) Repressor b) Activators

c) Spliceomers d) Lariate

3) During fertilization male gamets are carried by pollen tube. This is called

a) progamy b) syngamy c) acrogamy d) siphonogamy

4) Lac z gene encodes the enzyme

a) α galactosidase b) β galactosidase

c) β-protease d) α lipase

5) In embryonic development the process of formation of blastocoel remarked by stage

a) blastula b) gastrula c) tetrad d) morula

P.T.O.

6) _____ protein activates transcription of galactose genes in the yeast, S. cerevisiae.

a) Gal 4 b) Oct 1 c) Bax 6 d) Gal 9

7) _____ is a repeated division of fertilized egg producing cluster of cells.

a) Cleavage b) Amphimixis c) Epigenesis d) Phylesis

B) Define the following terms : **7**

i) Spliceosome.

ii) CaMV35s promoter.

iii) snRNPs.

iv) Heat shock gene expression.

v) Cell cycle.

vi) Cleavage.

vii) RNA editing.

SECTION – II

2. Describe lytic and lysogenic propagation control in lambda phage of E.coli. **14**

3. Discuss mechanism of contact and recognition between sperm and egg. **14**

4. Explain embryo sac formation and double fertilization in plants. **14**

5. Answer **any two** of the following : **14**

a) Discuss RNA splicing.

b) Process of gastrulation in animals.

c) Sex determination in animals.

6. Answer **any two** of the following : **14**

a) Discuss Arabidopsis thaliana, a model pant to study genetics.

b) Explain hormonal control of gene regulation in plants with one example.

c) Discuss galactose utilization in yeast.

_____

SLR-MQ – 403

Seat No.	

M.Sc. – I (Semester – II) (CBCS) (New) Examination, 2016
GENETICS
Paper – II : Concept of Biochemistry

Day and Date : Friday, 1-4-2016 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

***Note** : 1) Section **I compulsory**.*
*2) Answer **any four** questions from Section **II**.*

SECTION – I

1. a) Multiple choice question. **7**

i) _____ is mitochondrial protein contains heme as prosthetic group due to which absorb radiations in visible range.

a) porins b) cytochromes
c) ubiquinone d) coenzyme Q

ii) _____ is not capable of reducing ferric or cupric ion.

a) Lactose b) Sucrose
c) Maltose d) Glucose

iii) The first law of thermodynamics is based on the following principle.

a) Conservation of energy b) Conservation of mass
c) Reaction and action d) The entropy – temperation reaction

iv) _____ is the enzyme removes water molecule from 2-phosphoglycerate to yield phesophenolpyruvate.

a) mutase b) enolase
c) kinase d) transferase

v) The recommended dietary allowance of vitamin A is _____ IU.

a) 5000 b) 2000 c) 1000 d) 2500

vi) _____ is classified as basic amino acid.

a) Glycine b) Proline

c) Tyrosine d) Aspargine

vii) The term used for quantitative expression for the randomness or disorder in a thermodynamic system is _____

a) Entropy b) Enthalpy

c) Gibbs free energy d) Standard free energy change

b) Define the following terms : **7**

i) Carbohydrates

ii) Thermodynamics

iii) Vitamins

iv) Enzymes

v) Oxidative phosphorylation

vi) Lipid

vii) Oxidation.

SECTION – II

2. Explain in details the light dependent reaction of photosynthesis. **14**

3. Explain Michaelis Menten Equation. **14**

4. Discuss the reaction steps for oxidative and non oxidative phase of phosphogluconate pathway. **14**

5. Answer **any two** of the following. **14**

a) Classify carbohydrates with suitable examples.

b) Write a note on Kreb cycle.

c) Explain laws of thermodynamics justify its biological applications.

6. Write short notes on **any two** of the following. **14**

a) Primary and secondary structure of proteins

b) Water soluble vitamins

c) Urea cycle.

SLR-MQ – 404

Seat No.	

M.Sc. (Part – I, Semester – II) (CBCS New) Examination, 2016
GENETICS
Paper – III : Advanced Microbial Genetics

Day and Date : Monday, 4-4-2016 Total Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

***Note** : 1) Section – **I compulsory**.*
*2) Answer **any four** questions from Section – **II**.*

SECTION – I

1. A) Rewrite the sentence after choosing the correct answer from the given alternatives : **7**

   1) If the F factor is attached to the bacterial genome the donor is called as
      a) F + STRAINS b) F + super strains
      c) F++ Strains d) Hfr strains

   2) The vegetative cells of the Saccharomyces are recognised by the presence of
      a) chloroplasts
      b) a large vacuolated nucleus
      c) a small nucleus without a nuclear membrane
      d) a distinct cell wall

   3) Transduction is done with the help of
      a) bacteria b) fungus
      c) viruses d) mycoplasma

   4) Fermentation of sugar occurs by
      a) Mucor b) Saccharomyces
      c) Rhizopus d) Penicillium

   5) For inducing competency in a bacteria artificially _____ chemical is used.
      a) $CaCl_2$ b) $BaCl_2$
      c) $NaCl_2$ d) Na_2HPO_4

P.T.O.

6) For isolation of mutants of drug resistant _____ method is used.
   a) Plaque counting b) Colony isolation
   c) Replica plate technique d) Induction

7) Griffith used _____ organism for his studies on transformation.
   a) *E.Coli*
   b) *Bacillus subtilis*
   c) *Streptococcus pneumoniae*
   d) *Hemophilus influenzae*

B) Define the following terms : **7**

1) Conjugation
2) Lambda phage
3) Abortive transduction
4) Fluctuation test
5) Compatibility
6) Spontaneous mutation
7) Competency.

SECTION – II

2. Explain in detail phage P1 and P22 mediated transduction with neat labeled diagram. **14**

3. Describe the process of method of gene transfer in bacteria by conjugation with neat labelled diagram. **14**

4. Discuss in detail regulation of competency in B. subtilis. **14**

5. Answer **any two** of the following : **14**
   a) Explain in detail yeast mating – type switching mechanism.
   b) Describe in detail transformation of DNA in bacteria.
   c) Discuss in brief methods of isolation of phage resistant mutants.

6. Write short notes on **any two** of the following : **14**
   a) Discovery of conjugation.
   b) Map of F plasmid.
   c) Transduction.

_____

SLR-MQ – 405

Seat No.	

M.Sc. – I (Semester – II) (CBCS) Examination, 2016
GENETICS (New)
Paper – IV : Plant Breeding and Tissue Culture

Day and Date : Wednesday, 6-4-2016 Total Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1) Section **I** is **compulsory**.*
*2) From Section **II** attempt **any four**.*
*3) **All** questions carry **equal** marks.*
*4) Figures to **right** indicate **full** marks.*
*5) Draw **neat** and labeled diagrams.*

SECTION – I

1. A) Choose the correct answer from given alternatives. **7**

1) Discovery of _____ suggested that the organization of prokaryotic genome is quite complex.

a) Split genes b) Overlapping genes
c) Insertion sequences d) All of these

2) The somaclonal variation may be _____

a) Transient b) Epigenetic c) Genetic d) All of these

3) _____ demonstrated first time the recovery of protoplasts through enzymatic degradation of cell walls.

a) E. C. Cockinng (1960) b) J. M. Nelson (1916)
c) A. Fleming (1929) d) K. J. Kasha (1973)

4) Transgenic plants can be used as a mean of _____

a) Biodegradation b) Biosynthesis
c) Biopesticides d) All of the above

5) The directed desirable gene transfer from one organism to other and the subsequent expression of the gene is referred as _____
   a) Transgenomics b) Transgenosis
   c) Transgenics d) Transposons

6) In protoplast isolation _____ enzyme is commonly used.
   a) Amylase b) Cellulose c) Nuclease d) Lipase

7) _____ is a natural genetic engineer.
   a) Agrobacterium b) Pseudomonas
   c) Rhizobium d) Escherichia

B) Answer the following terms. **7**

1) What is mutation breeding ?
2) What is three way cross ?
3) What is hetrosis ?
4) What is edible vaccine ?
5) What is cryopreservation ?
6) What is bulk method ?
7) Law of homologous variation.

SECTION – II

Attempt **any four**.

2. Describe the breeding methods in self pollinated crops. **14**
3. Give an account on cryopreservation. **14**
4. Describe use of somaclonal and gametoclonal variation for crop improvement. **14**
5. Answer **any two** of the following. **14**
   1) Describe role of molecular marker in stress resistance breeding.
   2) Give an account on artificial seeds.
   3) Describe meristem culture.
6. Answer **any two** of the following. **14**
   1) Describe in details protoplast culture and fusion.
   2) Describe breeding in clonal prapogated plant.
   3) Describe GM crops for nutritional quality and quantity.

_____

SLR-MQ – 410

Seat No.	

M.Sc. – II (Semester – III) (CGPA) Examination, 2016
GENETICS
Paper – I : Immunology

Day and Date : Tuesday, 29-3-2016

Time : 2.30 p.m. to 5.00 p.m. Max. Marks : 70

Instructions *: 1) Section **I** is **compulsory**.*

*2) From Section **II** attempt **any four**.*

*3) **All** questions carry **equal** marks.*

*4) Figures to the **right** indicate **full** marks.*

*5) Draw **neat** labelled diagrams **wherever** necessary.*

SECTION – I

1. A) Rewrite the following sentences by using correct alternative. **7**

1) J-chains are associated with
   A) IgG
   B) Polymeric immunoglobulins (more than two Fab's)
   C) Serum IgA
   D) IgE

2) Peptide vaccines are desirable because
   A) They don't expose patients to active pathogens
   B) They are easier to manufacture than live pathogens
   C) They always evoke a cell mediated immunity
   D) They can be readily made to produce a cross-reactive immunity

3) Affinity maturation results in
   A) More mature macrophage populations
   B) Antibodies with a capacity to bind more tightly to the foreign antigen
   C) Slower immune complex formation
   D) Rapid immunoglobulin gene rearrangements

4) Active immunity is not acquired by
   A) Infection B) Vaccination
   C) Subclinical infection D) Immunoglobulin transfer
5) Serum sickness is an example of _____ hypersensitivity reaction.
   A) Type I B) Type II C) Type III D) Type IV
6) BCG is an example of _____ type of vaccine.
   A) Live attenuated B) Killed C) Recombinant D) Subunit
7) T-lymphocytes mature in
   A) Thymus B) Bone marrow C) Spleen D) Lymph node

B) Define the following terms : **7**

1) Epitope
2) Vaccine
3) Avidiy
4) Isograft
5) Complement
6) Innate immunity
7) Transplantation

SECTION – II

Attempt **any four** :

2. Write an essay on monoclonal antibodies. **14**

3. What is MHC ? Describe in detail the organization of MHC gene. **14**

4. Write an essay on cell mediated immunity. **14**

5. Describe the classical complement activation pathway in detail. **14**

6. Answer **any two** of the following : **14**
   1) Anatomical barriers of innate immunity.
   2) Lymph node.
   3) Types of transplants.

7. Answer **any two** of the following : **14**
   1) Mechanism of autoimmunity.
   2) RIA test.
   3) Recombinant vector vaccine.

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SLR-MQ – 413

Seat No.	

M.Sc. (Part – II) (Semester – III) (CGPA) Examination, 2016
Paper – IV : GENETICS
Bioinformatics and Research Methodology

Day and Date : Tuesday, 5-4-2016 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

Instructions *: i)* ***All*** *question of Section* ***I*** *are* ***compulsory****.*
ii) Answer ***any four*** *questions from Section* ***II****.*
iii) ***All*** *questions carry* ***equal*** *marks.*
iv) Draw ***neat*** *and labeled diagrams* ***wherever*** *necessary.*

SECTION – I

1. A) Rewrite the following sentences by choosing the most correct alternative given below : **7**

i) _____ database of NCBI contains all of MEDLINE, as well as citations provided directly by the publishers.
a) OMIM b) PubMed c) GSS d) EST

ii) One _____ is a unit of evolutionary divergence in which 1% of the amino acids have been changed.
a) PAM b) Gonnet c) BLOSSUM d) PUB

iii) _____ tool is used for multiple sequence analysis.
a) BLAST b) FASTA c) CLUSTAL d) PHYLIP

iv) _____ rely on a technique called linear discriminant analysis.
a) FGENEH b) GRAIL c) MZEF d) GenScan

v) _____ is biological search engine provided by NCBI to search database across it.
a) Amazone b) Google c) Entrez d) SRS

vi) _____ research attempts to discover or establish the existence of a relationship/interdependence between two or more aspects of a situation.
a) Descriptive b) Correlational c) Explanatory d) Explonatory

vii) _____ is simplest term of cutting and pasting from other studies and papers into your work.
a) Plagiarism b) Discussion c) Reference d) Review

P.T.O.

B) Define the following terms : **7**

i) GenBank

ii) Pairwise alignment

iii) Isoelectric point

iv) Research

v) Abstract

vi) Hypothesis

vii) Gap penalty.

SECTION – II

Answer **any four** :

2. Write an essay on NCBI data model. **14**

3. Discuss about evolutionary basis of alignment, optimal alignment methods and statistical significance of alignment. **14**

4. Explain in detail the tools used in prediction of DNA sequences. **14**

5. Describe in detail biohazardous agents, its risk to human health and bio-safety measures. **14**

6. Answer **any two** of the following : **14**

   a) Write a note on components of research.

   b) Give an account of formulations of research objectives.

   c) Illustrate the protein identity based on composition.

7. Answer **any two** of the following : **14**

   a) Discuss about position specific scoring matrices.

   b) Describe in detail GenBank and its file format.

   c) Write a note on plagiarism.

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SLR-MQ – 414

Seat No.	

M.Sc. – II (Semester – IV) (CGPA) Examination, 2016
GENETICS Paper – I
Genetic Engineering

Day and Date : Wednesday, 30-3-2016 Total Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

***Instructions** : 1) Section **I** is **compulsory**.*
*2) From Section **II** attempt **any four**.*
*3) **All** questions carry **equal** marks.*
*4) Figures to the **right** indicate **full** marks.*
*5) Draw **neat** and labeled diagrams.*

SECTION – I

1. A) Rewrite the following sentences by using correct alternative. **7**

1) _____ are inherited differences found among the individuals in more than 1% of normal population.

a) Polymorphism b) Molecular Markers

c) Variations d) Mutations

2) Which of the following DNA polymerase don't have 5' to 3' exonuclease activity ?

a) Kornberg b) Klenow c) Klenew d) Korenberg

3) _____ method is known as plus (+) minus (–) method of DNA sequencing.

a) Harrisons b) Haberlandts c) Sanger's d) Gilbert's

4) In colony hybridization method _____ membrane is used to blot transfer the colonies from master plate.

a) DBM Paper b) Whatmann filter Paper

c) Nylon Paper d) Nitrocellulose Paper

5) _____ is the technique used for characterizing large region of chromosome.

a) Chromosome walking b) RAPD

c) PCR d) RFLP

6) _____ cloning vector has COS site of λ phage.

a) pBR^{322} b) Cosmid c) Phagemid d) Plasmid

7) _____ is a type of cloning vector developed as co-infection of M 13 phage and plasmid to produces small version of virus.

a) BAC b) YAC c) Phagemid d) Cosmid

B) Define the following terms. **7**

1) Exonucleases.

2) Probe.

3) Cosmid.

4) Plasmid.

5) Microinjection.

6) C- DNA library.

7) Donar DNA.

SECTION – II

Attempt **any four**

2. Discuss in detail basic PCR and add a note on its applications. **14**

3. Explain chain termination method of DNA sequencing. **14**

4. Describe in detail isolation of vector DNA. **14**

5. Explain endonucleases w.r.t. their sequence specific activity. **14**

6. Answer **any two** of the following. **14**

   1) Write a note on production of recombinant insulin.

   2) Explain how will you produce salt stress tolerant plant.

   3) Discuss colony hybridization technique.

7. Answer **any two** of the following. **14**

   1) Explain in short development of insect resistant plants.

   2) Describe PEG mediated microinjection as direct DNA transfer method.

   3) Discuss chromosome walking.

SLR-MQ – 415

Seat No.	

M.Sc. – II (Semester – IV) (CGPA) Examination, 2016
GENETICS (Paper – II)
Cancer Genetics and Animal Cell Culture

Day and Date : Friday, 1-4-2016 Max. Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

***Instructions** : 1) Section **I** is **compulsory**.*
*2) From Section **II** attempt **any four**.*
*3) **All** questions carry **equal** marks.*
*4) Figures to **right** indicate **full** marks.*
*5) Draw neat and **labelled** diagrams.*

SECTION – I

1. A) Rewrite the following sentences by using correct alternative : **7**

1) Which of the following is the method for the mechanical disaggregation of the animal tissue ?

a) Sieving b) Syringing
c) Pippetting d) All of the above

2) _____ of cells represents their survival.

a) Toxicity b) Capacity c) Viability d) All of the above

3) In DNA methylation, the essential enzymes are

a) DNA polymerase b) RNA polymerase
c) DNAase d) DNA methyltransferases

4) _____ is used as direct method for gene transfer.

a) Cosmid b) *A. tumefaciens*
c) *A. rhizogens* d) Micro injection

5) Irradiation with UV-B produces _____ that are repaired by nucleotide excision repair.

a) C-C dimers b) Cyclobutane pyrimidine dimers
c) Purine dimer d) Uracil dimer

P.T.O.

6) The proteases system involved in apoptosis pathway is called as
   a) Caspases b) CD molecules
   c) p53 d) TGF-B
7) Due to the process of _____ tumor cells spread all over the body.
   a) Regeneration b) Angiogenesis
   c) Metastasis d) Motility

B) Answer the following terms : **7**

1) Epigenetics.
2) Oncogene.
3) Carcinogenes.
4) Benign tumor.
5) Primary Culture.
6) Viability.
7) Micromanipulation.

SECTION – II

Attempt **any four** :

2. Explain in detail event of angiogenesis. **14**

3. Explain in detail disaggregation of animal tissue. **14**

4. Discuss in detail applications of animal tissue culture. **14**

5. Explain the pathways of apoptosis. **14**

6. Answer **any two** of the following : **14**
   1) Justify, Virus are causative agent of cancer.
   2) Give details mechanism of Metastatic cascade.
   3) Write a short note on organ culture.

7. Answer **any two** of the following : **14**
   1) Add a note on physical carcinogenes.
   2) Explain in brief cell synchronization by chemical method.
   3) Discuss the method of cell cloning.

_____

SLR-MQ – 416

Seat No.	

M.Sc. (Part – II) (Semester – IV) (CGPA) Examination, 2016
GENETICS
Paper – III : Agriculture Science and Seed Technology

Day and Date : Monday, 4-4-2016 Max. Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

***Instructions** : 1) **All** questions of Section – **I** are **compulsory**.*

*2) Answer **any four** questions from Section – **II**.*

*3) **All** questions carry **equal** marks.*

*4) Draw **neat** and labelled diagrams **wherever** necessary.*

SECTION – I

1. A) Rewrite the following sentences by choosing the correct alternative given below : **7**

i) White alkali soil are _____ soil.

a) Saline b) Acid

c) Sodic d) Saline sodic

ii) The chief function of Xylem vessels in the plant body is _____

a) To translocate food materials manufactured in the leaves to other parts of plant

b) To eliminate excess of water through the root at night when there is no transpiration

c) To conduct water and mineral salts

d) None of these

P.T.O.

iii) During seed germination, seed coat rupture due to _____

a) Differentiation of cotyledons

b) Massive glycolysis in endosperm and cotyledons

c) Sudden increase in cell division

d) Massive imbibitions of water

iv) Seed develops from _____

a) Ovary b) Embryo

c) Ovule d) Embryo sac

v) BGA are used as biofertilizer in _____

a) Rice field b) Wheat field

c) Sugarcane field d) Legume field

vi) Symbiotic biofertilizer is _____

a) Nitrosomonas b) Rhizobia

c) Azotobacter d) Azospirillum

vii) _____ horizon of soil contain humus.

a) A-Horizon b) B-Horizon

c) C-Horizon d) Bed rock

B) Define the following terms : **7**

i) Guttation.

ii) Role of Pheromones in plant growth.

iii) Give principles of soil fertility.

iv) Give types of crops growth in India.

v) Give names of Phosphorous and Iron deficiency diseases in plant.

vi) Define seed technology.

vii) Importance of Animal Husbandry in agriculture.

SECTION – II

Answer **any four** :

2. Write an account on different methods used for seed processing. **14**

3. Write an account on mechanism of Absorption and translocation of water and nutrients in plant. **14**

4. Give an account on plant cell water relation by imbibition, surface tension, diffusion, osmosis. **14**

5. Explain in detail cultivation of Mushrooms. **14**

6. Answer **any two** of the following : **14**
   a) Write a note on essential nutrients for plant growth.
   b) Application of cytokinins.
   c) Biocomposting.
   d) Process of Fruit ripening.

7. Answer **any two** of the following : **14**
   a) Functions of giberllic acid in plant growth.
   b) Methods of seed storage.
   c) Factors associated with seed dormancy.

SLR-MQ – 417

Seat No.	

M.Sc. (Part – II) (Semester – IV) (CGPA) Examination, 2016
GENETICS
Industrial Biotechnology and IPR (Paper – IV)

Day and Date : Wednesday, 6-4-2016 Max. Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

N.B. : *1) Part – **I** question **1** is **compulsory**.*
*2) Attempt **any four** questions from Part – **II**.*
*3) Figures to the **right** indicates **full** marks.*
*4) Answer to the **two** Parts should be written in the **same** answer book.*

PART– I

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

1) _____ energy is a renewable energy resource.
a) Solar b) Methane c) Hydroelectric d) All of these

2) _____ is meant by novelty.
a) New b) Old c) Not useful d) None of these

3) _____ is an air pollutant.
a) Nitrogen b) Hydrogen
c) Carbon monoxide d) Oxygen

4) _____ pollution mainly affects Teeth.
a) Fluoride b) Nitrogen
c) Carbon dioxide d) Carbon monoxide

5) Cell number or biomass of batch culture exhibits curve of _____
a) J shape b) C-shape c) S (sigmoid) d) None of these

P.T.O.

6) _____ indicator is used in primary screening for acid producing organism.

a) pH b) Gas c) Electric d) None of these

7) _____ are present in the fermentor to avoid the vortex formation.

a) Impeller b) Baffles c) Sparger d) All of these

8) _____ is not a type of copyright work.

a) Literary works b) Furniture c) Sculpture d) Musical works

9) Low dissolved oxygen concentrations leads to _____

a) low biomass yields b) high biomass yields

c) no effect on biomass yields d) none of the above

10) In anaerobic sludge digestion _____ is the major gas released.

a) Hydrogen b) Methane c) Nitrogen d) Oxygen

11) Computers are used in Bioreactor for _____

a) Data acquisition b) Data analysis

c) a+b d) Either a or b

12) _____ is the leading source of energy used in India today.

a) Coal b) Oil resources

c) Natural gas d) Nuclear power

13) Rheology property of fermentation Broth is related to _____

a) Viscosity b) Oxygen c) Temperature d) All of these

14) _____ is described as best secondary metabolite.

a) Acetic acid produced from the oxidation of ethanol

b) Ethanol from the fermentation of glucose

c) Penicillin

d) Citric acid from the partial oxidation of glucose

PART – II

2. Describe in detail the various criteria used when a process of formulation media is going on and add a note on rheology. **14**

3. What are industrial wastes ? Explain in detail bioremediation of industrial wastes. **14**

4. Describe in detail Upstream and Downstream Processing in biotechnology based industry. **14**

5. Attempt **any two** of the following : **14**

   a) Patenting of Biological Materials.

   b) Basic design of fermenter.

   c) Non Conventional energy resources.

6. Attempt **any two** of the following : **14**

   a) Describe in detail the different raw materials used for fermentation media.

   b) Computer control systems in fermenter.

   c) Revocation of turmeric and neem.