

msc-I

Seat No. 1550

QP Code: 2705QP
Total No. of Pages: 2

January - February (Winter) Examination - 2023

Subject Name: Master Of Science (New CBCS)_B7824 Genetics And Molecular Biology_08.02.2023_10.30 AM To 01.30 PM

Subject Code: 87824

Day and Date: Wednesday, 08-02-2023
Time: 10:30 am to 01:30 pm

Total Marks: 80

Instructions.:

1) Figures to the right indicate full marks

Special Instruction.:

1. A total of FIVE questions are to be answered from the entire paper 2. Answers to all the FIVE questions are to be written in the SAME answer book 3. Question - 1 is COMPULSORY 4. Attempt ANY TWO questions from Section - I (Q. 2 to Q. 4) and ANY TWO questions from Section - II (Q. 5 to Q. 7) 5. No supplements will be provided

State whether the given statements are TRUE or FALSE

[16]

1. Gregor Mendel put forth the Laws governing Inheritance of Linked genes.
2. Lampbrush chromosome is the characteristic of vertebrate oocytes.
3. Histone proteins are rich in negatively charged amino acids.
4. The chi site triggers loss of the RecD subunit and nuclease activity.
5. Holliday junction is created during strand invasion step.
6. Blotting is DNA amplification technique.
7. p21 tumor suppressor protein antagonise the function of CDKs.
8. Lampbrush chromosome is the characteristic of vertebrate oocytes.
9. Viruses cultivated in the medium containing radioactive sulphur, then these viruses possess radioactive DNA but not radioactive protein.
10. Retroviral oncogene have been originated from retroviruses.
11. Organisms like *Saccharomyces cerevisiae*, produces unordered tetrads.
12. Gated transport is pathway of protein translocation between cytosol and nucleus.
13. Chitinase is used for breaking of cell walls of bacteria during protoplast preparation.
14. eIF 4A removes secondary structures in mRNA and allows binding of 40S ribosomal subunit during translation.
15. DNA polymerase α shows primase activity in Eukaryotic DNA replication.
16. BAX antagonize the function of BCL-2.

SECTION - I

[16]

Q2. Explain in detail molecular basis of mitosis & meiosis.

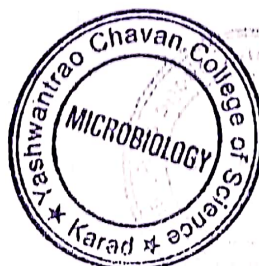
OR

Explain in detail about organic evolution with respect to mechanism of speciation.

[16]

Q3. Discuss in brief (ANY TWO)

- a) Regulation of cell cycle
- b) Pseudo-genes as dead ends of evolution.
- c) Evidences for nucleic acids as genetic material



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Q.1. State whether the given statements are TRUE or FALSE [16]

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SECTION - I

[16]

Q.2. Explain in detail molecular basis of mitosis & meiosis.

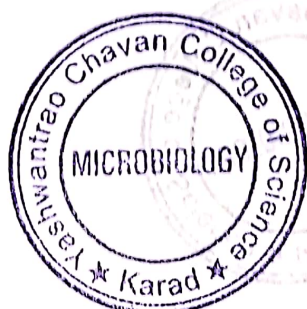
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Explain in detail about organic evolution with respect to mechanism of speciation.

Q.3. Discuss in brief (ANY TWO)

[16]

- a) Regulation of cell cycle
- b) Pseudo-genes as dead ends of evolution.
- c) Evidences for nucleic acids as genetic material



Q.4. Write short notes on (ANY FOUR)

[16]

- a) ~~Capping of mRNA~~
- b) ~~Heterochromatin~~
- c) ~~Overlapping genes~~
- d) ~~Structure of mRNA~~
- e) Genetic Polymorphism
- f) Dosage compensation

Q.5.

SECTION - II

[16]

What is protein sorting? Explain the mechanisms of protein transport to nucleus, mitochondria and chloroplasts.

OR

Explain in detail molecular mechanism of oncogenesis.

Q.6. Describe in brief (ANY TWO)

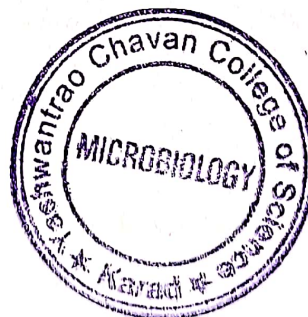
[16]

- a) Principle, working and applications of PCR
- b) Posttranslational processing.
- c) Environmental and genetic causes of teratogenesis

Q.7. Write short notes on (ANY FOUR)

[16]

- a) Machineries involved in protein synthesis
- b) ~~Protoplast fusion~~
- c) Holliday junction
- d) Colony hybridization
- e) Significance of RMS
- f) ~~Southwestern blotting~~



January - February (Winter) Examination - 2023

Subject Name: Master Of Science (New CBCS)_87823_Virology_06.02.2023_10.30 AM To 01.30 PM

Subject Code: 87823

Day and Date: Monday, 06-02-2023
Time: 10:30 am to 01:30 pm

Total Marks: 80

Instructions.:

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Special Instruction.:

1) Total of five questions are to be answered from the entire paper. 2) Question 1 is compulsory. 3) Attempt any two questions from each section. Section-I (Q.2 to 4) and Section-II (Q.5 to 7) 4) Answers to all the questions are to be written in the same answer book. 5) Supplements will not be provided.

Q.1.

State whether following statements are true or false.

[16]

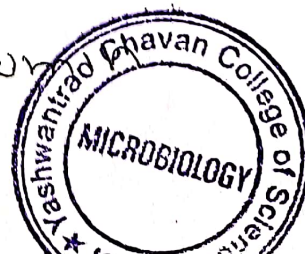
- a) All T-odd phages are mutually exclusive phages.
- b) Gene-V of lambda phage functions in tail formation during its productive cycle. F
- c) Premature lysis experiment discloses the intracellular developments during phage T multiplication.
- d) Repression maintenance in lambda lysogeny needs expression of gene C-I through 'pre' T site.
- e) L-P3 protein complexes functioning as components of viral RdRp are not the structural components of the virion.
- f) Base composition of SP01 phage DNA has 5HMT in it.
- g) Slow viruses get inactivated when heated at temperatures above 130°C in an autoclave. T
- h) Cytoplasmic and nascent cleavages of m RNA are needed during multiplication of picorna viruses. F
- i) Reo viral structure at its corner from inside has RdRp and RNA modifying activity.
- j) PB2, PB1 and PA proteins are involved in capping of influenza viral RNA in cell cytoplasm. F
- k) Strand displacement model explains replication in case of Phi-29 phage. F
- l) IRES are the structures present on 3' of the genomic RNA.
- m) Proviral DNA of retro virus is synthesised in the nucleus of the infected cell.
- n) Aspermy viruses can make fruits seedless.
- o) Better antiviral chemotherapeutic substances have SI values of less than 1.0. F
- p) Indirect effect of X-radiations on viruses is due to formation of long lasting toxic chemicals due to X-radiations. T

Q.2.**SECTION-I****[16]**

Describe in brief 'reproduction of Herpes viruses'.

OR

Describe in brief 'Multiplication of Reo viruses'.



Q.3.

Describe in Brief (ANY TWO)

- A) Primary transcription in Picorna virus multiplication
- B) Nucleic acid analogs in antiviral chemotherapy
- C) Formation of proviral DNA in retroviruses

[16]

Q.4.

Write short notes on (ANY FOUR)

- a) Multiplication of SPO1 phages
- b) 5' Cap formation in influenza viruses
- c) Single burst experiment
- d) Lysogeny of Mu1 phage
- e) Effect of viruses on plant leaves
- f) Slow viruses

40

Q.5.

SECTION-II

Describe various modes of vector transmission of plant viruses.

OR

Productive cycle of Phi-29 phage.

Q.6.

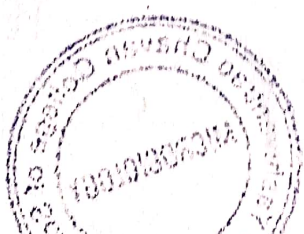
Describe in Brief (ANY TWO)

- A) Gene expression during Lambda productive cycle
- B) Replication of lettuce necrotic yellow virus genome
- C) 'Minus strong stop DNA' synthesis in retroviruses

Q.7.

Write short notes on (ANY FOUR)

- a) AZT
- b) 5' and 3' DIPs
- c) Modifications in RNA polymerase by SP01 phage proteins
- d) Immunity a property of lysogeny
- e) UV inactivation of viruses
- f) Seed transmission of plant viruses.



Seat No. 1850

QP Code: 2609QP
Total No. of Pages: 2

January - February (Winter) Examination - 2023

Subject Name: Master Of Science (New CBCS) 87825 Immunology_10.02.2023_10.30 AM To 01.30 PM
Subject Code: 87825

Day and Date: Friday, 10-02-2023
Time: 10:30 am to 01:30 pm

Total Marks: 80

Instructions:

1) Figures to the right indicate full marks

Special Instruction:

1) Total of FIVE questions are to be answered from the entire paper. 2) Question ONE is compulsory. 3) Attempt ANY TWO questions from each section. Section I (Q.2 to Q.4) Section II (Q.5 to Q.7). 4) Answers to all the questions are to be written in the same answer book. 5) Supplements will not be provided.

- Q.1. State whether the following statements are TRUE or FALSE. [16]
- (a) IL-1RA is a competitive inhibitor of IL-1 α and IL-1 β .
 - (b) IL-2 receptor (IL-2R) is composed of five subunits.
 - (c) CD3 molecules with long cytoplasmic tails are responsible for signalling events mediation.
 - (d) ZAP-70 is responsible for the dephosphorylation of a number of intracellular proteins.
 - (e) Ras stimulates the MAP kinase cascade of serine-threonine kinases.
 - (f) Diacylglycerol activates the protein kinase C family of serine-threonine protein kinases.
 - (g) C3b and C5b-9 connected Membrane Attack Complex (MAC) is involved in the Virus neutralization.
 - (h) S protein is binds to soluble C5b67 and prevent the insertion into the Cell Membrane.
 - (i) Immunomodulators are drugs which suppress the immune system called as "Immunosuppressants".
 - (j) Process of graft rejection includes revascularization followed by thrombosis and necrosis called as a second set of rejection.
 - (k) Tyrosinase is a differentiation antigen expressed in a melanoma.
 - (l) SV40 is a commonly used virus for induction of tumors.
 - (m) TATA (Tumor associated transplantation antigens) are shared by normal and tumor cells.
 - (n) Carcino- embryonic antigens are normally expressed during fetal life on fetal gut.
 - (o) Streptolysin S is an oxygen sensitive hemolysin.
 - (p) Calcium ion, Ca²⁺ is a classic example of a second messenger.

- Q.2. SECTION-I [16]
What is T cell sensitization? Explain in detail T-cell sensitization by CD 45 and CD 28.

OR

Explain in detail about the Antibody diversity

- Q.3. Attempt any TWO. [16]

- (a) Explain in detail structure and function of MHC II complex.
- (b) Explain in detail signal transduction by Jak/Stat pathway.
- (c) Explain in detail about Mannose Binding Lectin pathway of Complement activation

- Q.4. Write short notes on Any FOUR. [16]

- (a) H-2 Complex Of Mouse
- (b) Interaction of T-cells with APCs
- (c) Structure of MHC I complex
- (d) Biological consequence of complement activation
- (e) rDNA vaccine
- (f) Alternate pathway of Complement pathway

B7-1 B7-2 B7-3 B7-4 B7-5 B7-6 B7-7 B7-8 B7-9 B7-10 B7-11 B7-12 B7-13 B7-14 B7-15 B7-16 B7-17 B7-18 B7-19 B7-20 B7-21 B7-22 B7-23 B7-24 B7-25 B7-26 B7-27 B7-28 B7-29 B7-30 B7-31 B7-32 B7-33 B7-34 B7-35 B7-36 B7-37 B7-38 B7-39 B7-40 B7-41 B7-42 B7-43 B7-44 B7-45 B7-46 B7-47 B7-48 B7-49 B7-50 B7-51 B7-52 B7-53 B7-54 B7-55 B7-56 B7-57 B7-58 B7-59 B7-60 B7-61 B7-62 B7-63 B7-64 B7-65 B7-66 B7-67 B7-68 B7-69 B7-70 B7-71 B7-72 B7-73 B7-74 B7-75 B7-76 B7-77 B7-78 B7-79 B7-80 B7-81 B7-82 B7-83 B7-84 B7-85 B7-86 B7-87 B7-88 B7-89 B7-90 B7-91 B7-92 B7-93 B7-94 B7-95 B7-96 B7-97 B7-98 B7-99 B7-100

- Q.5. SECTION-II [16]
What is tumor immunology? Give details of immune surveillance, immunocompromise & cancer, congenital immunodeficiency, immunotherapy of human cancer.

OR

Give details of immunochemical techniques and their applications.

- Q.6. Describe in brief (Any TWO) [16]
- (a) Immunological mechanisms against tumour cells.
 - (b) Process of immunosuppressive therapy in transplantation.
 - (c) PCR based diagnostic test.

- Q.7. Write Short notes on (Any FOUR) [16]
- (a) Tumour escape mechanism
 - (b) Passive immunotherapy for tumors
 - (c) ELISA
 - (d) Immunodiffusion
 - (e) Immunoelectrophoresis
 - (f) Fluorescence Activated cell sorters



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QP Code: 2297QP
Total No. of Pages: 2

January - February (Winter) Examination - 2023

Subject Name: Master Of Science (New CBCS) 87822 Taxonomy And Microbial Diversity_13/02/2023_10.30 AM
To 01.30 PM

Subject Code: 87822

Day and Date: Monday, 13-02-2023
Time: 10:30 am to 01:30 pm

Total Marks: 80

Instructions:-

1) Figures to the right indicate full marks

Special Instruction:-

1) Total of FIVE questions are to be answered from the entire paper. 2) Question ONE is compulsory. 3) Attempt ANY TWO questions from each section. Section I (Q.2 to Q.4) Section II (Q.5 to Q.7). 4) Answers to all the questions are to be written in the same answer book. 5) Supplements will not be provided.

Q.1. State whether the following statements are TRUE or FALSE. [16]

a) Nitrogen fixation under anaerobic condition is common in green bacteria.

b) Many of cyanobacteria are obligate chemolithotrophic.

c) The brown species of *Rhodospirillum* are very sensitive to oxygen.

d) Members of order *Nostocales* produce heterocysts.

e) Bacterial magnetosomes are generally used in synthesis of bioactive compounds.

f) Pleomorphism is distinctive feature of barophiles.

g) *Methanospirillum* sp. are filamentous with double layer cell wall.

h) Acidophiles live in soil laden with carbonates and soda lakes.

i) The odour of moist earth is largely the result of *Streptomyces* sp. producing a volatile substance called as jasmine.

j) The fungal spores not closed in sacs but produced at tips or sides of hyphae are termed as sporangiospores

k) The photobiont/phycobiont of most of the lichens is *Comella* sp.

l) The first acceptable description of ascospores of yeast was published by de Seynes in 1868.

m) Yeast like fungi grow partly as yeasts and partly as elongated cells resembling hyphae.

n) Closely related strains constitute a bacterial species.

o) Bergey's Manual of Systematic Bacteriology provides information based on 16S rRNA sequencing.

p) The nomenclature of the word "murium" from *Salmonella typhimurium* has been derived from mice.

Q.2.

SECTION-I
Explain in detail general characteristics of extremely halophilic Archaeobacteria. [16]

OR
Explain in detail mitochondria and Plasmalemma of yeasts.

Q.3. Attempt any TWO. [16]

(a) General characteristics of hyper thermophiles

(b) General characteristics of alkalophiles.

(c) General characters of Ectomycorrhiza

Q.4. Write short notes on Any FOUR. [16]

(a) Molecular adaptation of acidophiles

(b) Characters of genus *Methanobacter*

(c) Characters of barophiles

(d) Nocardioform actinomycetes

(e) General characters of *Aspergillus* sp. *Bidaria conidia*

(f) Reproduction of lichens

Q.5.

SECTION-II
Explain in brief general characteristics of anoxygenic phototrophic bacteria. [16]

OR
Describe in detail modern trends in prokaryotic taxonomy.

Q.6. Attempt Any TWO [16]

(a) External and internal features of cyanobacteria

(b) Magnetosomes

(c) Classification of prokaryotic organisms

Q.7. Write Short notes on Any FOUR [16]

(a) Characteristics of order Prochlorales

(b) Characters of order Nostocales

(c) Habitats of Magnetotactic bacteria

(d) Bacterial speciation

(e) Interpretation of phylogenetic trees

(f) Prokaryotic domains



Seat No.	
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SF - 566
Total No. of Pages : 3

M.Sc. (Part-I) Semester - I Examination, November - 2019

MICROBIOLOGY

MIC-CC-103 : Genetics and Molecular Biology

(Paper - II)

Sub. Code: 74559

Day and Date : Tuesday, 19 - 11 - 2019
Time : 11.00 a.m. to 2.00 p.m.

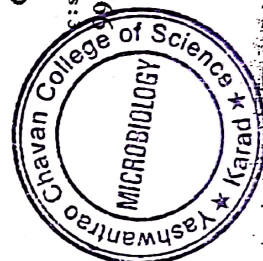
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- Q1) State whether the given statements are TRUE or FALSE [16]
- a) If the DNA keeps shortening beyond a limit, the cell undergoes apoptosis.
 - b) Spliceosomal introns generally have the dinucleotide sequence GU and AG at the 5' and 3' ends, respectively where splicing occurs.
 - c) The main process taking place in zygotene is synapsis.
 - d) Fetal phase is most susceptible for teratogens.
 - e) The DNA-handling activity of Rec BCD enables a single strand to displace its homologue in a duplex in a reaction that is called single-strand uptake.
 - f) Interleukin recombination was found to occur by non reciprocal recombination mechanism.
 - g) Chromosome walking is also known as functional cloning.
 - h) The Cot curve analysis is directly related to the amount of DNA in the genome.
 - i) The length and GC-content (guanine-cytosine content) of the primer should be sufficient for stable binding with template in PCR technique.
 - j) Necrosis is an active and regulated cell death process that occurs in the body.
 - k) Cap is added to 3' end of m-RNA in CTD part of transcriptase.

PTO.



- SF - 566
- j) Spindle fibers are made up of tubulin protein.
 - m) In type III RFLP, a single hetero-digmeric complex catalyzes both the restriction and modification activities.
 - n) David Galas and Albert Schmitz developed the DNA foot printing technique.
 - o) Lampbrush chromosomes are composed of transcriptionally inactive lateral loops.
 - p) RFI is responsible for recognition of two stop codons UAA and UAG while RF2 can recognize the codon UGA

SECTION-I

- Q2) Discuss in detail post transcriptional processing of t-RNA [16]
- OR
- Explain in detail molecular basis of evolution. [16]

- Q3) Discuss in brief (Any Two) [16]
- a) General principles of Mendelian inheritance.
 - b) Theta mode of DNA replication.
 - c) Origin and evolution of economically important plants and animal.

- Q4) Write short notes on (Any Four) [16]
- a) Polytene chromosome
 - b) Griffith experiment
 - c) Metaphase in mitosis
 - d) Unique and repetitive DNA
 - e) Evolution of pre cell
 - f) Interrupted genes

SECTION-II

- Q5) Discuss types, structure and functions of Restriction and Modification system. [16]
- OR
- What is protein localization? Explain in brief protein localization from cytoplasm to nucleus, mitochondria and chloroplast. [16]

Q6) Describe in brief: (Any Two)

- a) Posttranslational modification of protein.
- b) Methods of protoplast fusion.
- c) Bacterial identification by 16S rRNA gene sequence analysis.

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[16]

Q7) Write short notes on: (Any Four)

- a) Teratogen.
- b) Role of p53 gene product in cancer prevention.
- c) PCR.
- d) Interallelic recombination.
- e) South-western blotting.
- f) Role of telomere shortening in cancer.

[16]

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Seat No.

SF - 566
Total No. of Pages : 3

M.Sc. (Part-I) Semester - I Examination, November - 2019

MICROBIOLOGY

MIC-CC-103 : Genetics and Molecular Biology

(Paper - II)

Sub. Code: 74559

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- d) Fetal phase is most susceptible for teratogens.
- e) The DNA-handling activity of Rec BCD enables a single strand to displace its homologue in a duplex in a reaction that is called single-strand uptake.
- f) Interallelic recombination was found to occur by non reciprocal recombination mechanism.
- g) Chromosome walking is also known as functional cloning.
- h) The Cot curve analysis is directly related to the amount of DNA in the genome.
- i) The length and GC-content (guanine-cytosine content) of the primer should be sufficient for stable binding with template in PCR technique.
- j) Necrosis is an active and regulated cell death process that occurs in the body.
- k) Cap is added to 3' end of m-RNA in CTD part of transcriptase.

P.T.O.

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- l) Spindle fibers are made up of tubulin protein.
- m) In type III RMS, a single hetero-oligomeric complex catalyzes both the restriction and modification activities.
- n) David Galas and Albert Schmitz developed the DNA foot printing technique.
- o) Lampbrush chromosomes are composed of transcriptionally inactive lateral loops.
- p) RF1 is responsible for recognition of two stop codons UAA and UAG while RF2 can recognize the codon UGA

SECTION-I

Q2) Discuss in detail post transcriptional processing of t-RNA. [16]

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SECTION-II

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-2-



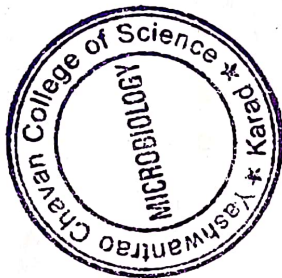
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[16]

- Q6) Describe in brief: (Any Two)
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[16]

- Q7) Write short notes on: (Any Four)
- a) Teratogen.
 - b) Role of p53 gene product in cancer prevention.
 - c) PCR.
 - d) Interallelic recombination.
 - e) South-western blotting.
 - f) Role of telomere shortening in cancer



Seat
No.

SF - 566
Total No. of Pages : 3

M.Sc. (Part-I) (Semester - I) Examination, November - 2019
MICROBIOLOGY

MIC-CC-103 : Genetics and Molecular Biology

(Paper - III)

Sub. Code: 74559

Day and Date : Tuesday, 19 - 11 - 2019

Total Marks : 80

Time : 11.00 a.m. to 2.00 p.m.

Instructions :

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P.T.O.

SF- 566

- l) Spindle fibers are made up of tubulin protein.
- m) In type III RMS, a single hetero-oligomeric complex catalyzes both, the restriction and modification activities.
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SECTION-I

Q2) Discuss in detail post transcriptional processing of t-RNA [16]

OR

Explain in detail molecular basis of evolution. [16]

Q3) Discuss in brief (Any Two) [16]

- a) General principles of Mendelian inheritance.
- b) Theta mode of DNA replication.
- c) Origin and evolution of economically important plants and animal.

Q4) Write short notes on (Any Four) [16]

- a) Polytene chromosome
- b) Griffith experiment
- c) Metaphase in mitosis
- d) Unique and repetitive DNA
- e) Evolution of pre cell
- f) Interrupted genes

SECTION-II

Q5) Discuss types, structure and functions of Restriction and Modification system. [16]

OR

What is protein localization? Explain in brief protein localization from cytoplasm to nucleus, mitochondria and chloroplast [16]



Q6) Describe in brief: (Any Two)

- a) Posttranslational modification of protein
- b) Methods of protoplast fusion.
- c) Bacterial identification by 16s rRNA gene sequence analysis

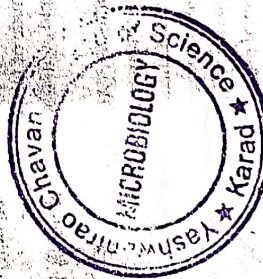
SF-566

[16]

Q7) Write short notes on: (Any Four)

- a) Teratogen.
- b) Role of p53 gene product in cancer prevention.
- c) PCR.
- d) Interallelic recombination.
- e) South-western blotting.
- f) Role of telomere shortening in cancer

[16]



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M.Sc. (Part-I) Semester - I Examination, November - 2019

MICROBIOLOGY

MIC-CC-103 : Genetics and Molecular Biology

(Paper - III)

Sub. Code: 74559

Day and Date : Tuesday, 19 - 11 - 2019
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 80

- Instructions :
- 1) A total of five questions are to be answered from the entire paper.
 - 2) Answers to all the five questions are to be written in the SAME answer book.
 - 3) Question 1 is Compulsory.
 - 4) Attempt Any Two questions from Section- I (Q.2 to Q.4) and Any two questions from section-II (Q.5 to Q.7).
 - 5) No Supplements will be provided.
 - 6) Figures to the Right indicate Full Marks.

Q1) State whether the given statements are TRUE or FALSE [16]

- a) If the DNA keeps shortening beyond a limit, the cell undergoes apoptosis. [16]
- b) Spliceosomal introns generally have the dinucleotide sequence GU and AG at the 5' and 3' ends, respectively where splicing occurs.
- c) The main process taking place in zygote is synapsis.
- d) Fetal phase is most susceptible for teratogens.
- e) The DNA-handling activity of Rec BCD enables a single strand to displace its homologue in a duplex in a reaction that is called single-strand uptake.
- f) Interallelic recombination was found to occur by non reciprocal recombination mechanism.
- g) Chromosome walking is also known as functional cloning.
- h) The Cot curve analysis is directly related to the amount of DNA in the genome.
- i) The length and GC-content (guanine-cytosine content) of the primer should be sufficient for stable binding with template in PCR technique.
- j) Necrosis is an active and regulated cell death process that occurs in the body.
- k) Cap is added to 3' end of m-RNA in CTD part of transcriptase.

P.T.O.

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- l) Spindle fibers are made up of tubulin protein.
- m) In type III RMS, a single hetero-oligomeric complex catalyzes both the restriction and modification activities.
- n) David Galas and Albert Schmitz developed the DNA foot printing technique.
- o) Lampbrush chromosomes are composed of transcriptionally inactive lateral loops.
- p) RF1 is responsible for recognition of two stop codons UAA and UAG while RF2 can recognize the codon UGA

SECTION-I

Q2) Discuss in detail post transcriptional processing of t-RNA. [16]

OR

Explain in detail molecular basis of evolution. [16]

Q3) Discuss in brief (Any Two) [16]

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- b) Theta mode of DNA replication.
- c) Origin and evolution of economically important plants and animal.

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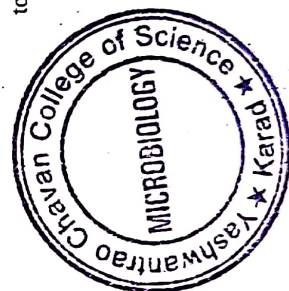
- a) Polytene chromosome
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SECTION-II

Q5) Discuss types, structure and functions of Restriction and Modification system. [16]

OR

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[16]

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- Bacterial identification by 16s rRNA gene sequence analysis.

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[16]

- Teratogen.
- Role of p53 gene product in cancer prevention.
- PCR.
- Interallelic recombination.
- South-western blotting.
- Role of telomere shortening in cancer.



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Total No. of Pages : 3

M.Sc. (Part - I) Semester - I (CBCS) Examination, November 2018
MICROBIOLOGY (Regular) (Paper - IV)

Immunology

Sub. Code : 59661

Day and Date : Tuesday, 27 - 11 - 2018

Total Marks : 80

Time : 10.30 a.m. to 01.30 p.m.

- Instructions :
- 1) Total of five questions are to be answered from the entire paper.
 - 2) Question I is compulsory.
 - 3) Attempt any two questions from each Section. Section - I (Q.2 to 4) and Section - II (Q.5 to 7)
 - 4) Answers to all the questions are to be written in the same answer book.
 - 5) Supplements will not be provided.
 - 6) Figures to the right indicate full marks.

Q1) State whether following statements are true or false. [16]

- a) The graft of a rabbit heart transferred in to guinea pig is known as xenograft.
- b) First rejection of a graft is shown within 07 days after grafting.
- c) Effector lymphocytes are the naive lymphocytes.
- d) Corticosteroids such as prednisone are used during grafting as general immunosuppressant
- e) Ras is small G protein involved in signal transduction.
- f) Activities of dendritic cells of graft can lead to rejection of grafts.
- g) MHC class-I molecules are found on almost all types of nucleated body cells.
- h) Tumors induced by same virus show formation of same tumor antigen on every tumor.
- i) When the skin of strain B mouse is grafted on the body of naive strain B mouse, it is rejected within 6 days.
- j) Widal test uses insoluble Flagellar antigen in the serodiagnosis of typhoid.

P.T.O.

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- k) Immune escape mechanism can help tumor cells get set in to the body causing malignancy.
 - l) Class-I MHC molecules bind to peptides and present them to CD4⁺ T cells.
 - m) Immunoglobulin gene for lambda light chain is located on chromosome 14 in human.
 - n) Western blotting is known as passive blotting.
 - o) Antibody diversity is generated due to combinatorial joining of multiple germ-line gene segments.
 - p) The antigen processing in an endosome takes place by cytosolic pathway.

SECTION - I

Q2) a) Describe in brief the process of exposure of new antigen to immunocompetent cells. [16]

OR

b) Explain the process of signal transduction.

Q3) Describe in Brief (Any Two) [16]

- a) MHC polymorphism.
- b) Combinatorial joining in Antibody diversity.
- c) Structure of class I and class - II MHC complex.

Q4) Write short notes on (Any Four) [16]

- a) Good and bad effects of Immune suppression.
- b) Synthetic peptide vaccines.
- c) Role of immunological synapse in immunostimulation.
- d) Biological consequences of Complement activation.
- e) Ir genes for light chains of immunoglobulin.
- f) Food vaccine.



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SECTION - II

Q5) a) Describe the immune escape mechanisms needed for developing malignancies in the body. [16]

OR

b) Explain the evidences for the graft rejection as an immunological process. [16]

Q6) Describe in Brief (Any Two)

- a) Immune surveillance mechanisms.
- b) Immune therapy in human cancer.
- c) Principle and applications of serodiagnosis.

Q7) Write short notes on (Any Four)

- a) ELISA test
- b) PCR based diagnostic tests
- c) Cold hemagglutination test
- d) Paul Bunnell test
- e) Cancer in organ transplant recipient
- f) Applications of immunoelectrophoresis



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Total No. of Pages : 3

Seat No.

M.Sc. (Part - I) (Semester - I) (CBCS) Examination, November - 2018
MICROBIOLOGY (Regular) (Paper - IV)

Immunology
Sub. Code : 59661

Total Marks : 80

Day and Date : Tuesday, 27 - 11 - 2018

Time : 10.30 a.m. to 01.30 p.m.

Instructions : 1) Total of five questions are to be answered from the entire paper.

- 2) Question 1 is compulsory.
3) Attempt any two questions from each Section. Section - I (Q.2 to 4) and Section - II (Q.5 to 7)
4) Answers to all the questions are to be written in the same answer book.
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Q1) State whether following statements are true or false. [16]

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P.T.O.

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- Immune escape mechanism can help tumor cells get set in to the body causing malignancy.
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- Western blotting is known as passive blotting.
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- The antigen processing in an endosome takes place by cytosolic pathway.

SECTION - I

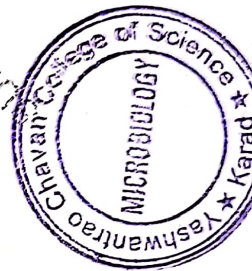
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SECTION-II

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