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CCW-801

Seat No. _____

B. Sc. (Sem. V) Examination

October - 2019

F.C : English*(The Joy of Reading - Selected Prose & Poetry)*Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instruction : Indicate your options clearly.

1 Answer the following questions in brief : 18

(Any Six)

- (1) Why did Gerald Durrell move around the zoo at midnight?
- (2) Why did the horse give his harness bell shake?
- (3) Enumerate the qualities the poet wishes his country to have.
- (4) When did the astrologer usually start his day's business?
- (5) Why does the poet refer to heaven as 'deaf'?
- (6) What is the emotional state of the poet when the Sonnet 29 begins?
- (7) Why can't the poet stop at the woods for long time?
- (8) Why are Pere David deer so named?
- (9) How does the Indian education system differ from American Education system?

- 2 "An Astrologer's Day is a humorous story upon the life of India." Discuss.

OR

Discuss the difference between the education system of India and America.

- 3 (A) Turn the following sentences into indirect narration : (Any Six)
- (1) Karan said to Minal, "Why are you late today?"
 - (2) "Shut the door", the principal said to the peon.
 - (3) The teacher said, "The Earth moves round the sun."
 - (4) They said, "What a beautiful scene it is!"
 - (5) Mayur said to me, "Did you meet the man outside"
 - (6) The teacher said to the students, "I will show you some pictures tomorrow"
 - (7) Brindra said to me, "Let's settle the problem."

(B) Fill in the blanks with appropriate forms of Conjunctions : (Any Six)

- (1) Sit quietly _____ leave the class.
(or / and)
- (2) _____ our hoard is little, our hearts are great. (Though / But)
- (3) _____ we plant more trees, it will help our environment to survive. (If / As)
- (4) Sudhir does not smoke _____ does he drink. (and / nor)

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[Contd.

- (5) Tell me _____
(how / other)
- (6) Minal was _____
she was ill
- (7) The farmer _____
dark. (till)

- (C) Use the following verbs in your
- (1) According
 - (2) Owing to
 - (3) Abide by
 - (4) Wind up
 - (5) On account
 - (6) break into
 - (7) hand over

- 4 (A) Translate the English into _____
- Man is the animal that makes a proper use of his duties according to his nature and prosper in life. He is sure to kill time is as for our life is hours, days and of life. In youth and can be made we lose the time have to repeat

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- (5) Tell me _____ you solved this puzzle.
(how / otherwise)
- (6) Minal was absent yesterday _____
she was ill. (because / so)
- (7) The farmer worked hard _____ it got
dark. (till / when)

(C) Use the following phrasal prepositions and verbs in your own sentences : (Any Six) 6

- (1) According to
- (2) Owing to
- (3) Abide by
- (4) Wind up
- (5) On account of
- (6) break into
- (7) hand over

4 (A) Translate the following passage from English into Gujarati or Hindi. 10

Man is the architect of his own fate. If he makes a proper division of his time and does his duties accordingly, he is sure to improve and prosper in life; but if he does otherwise, he is sure to repent when it is too late. To kill time is as culpable as to commit suicide, for our life is nothing but the sum total of hours, days and years. Youth is the seed-time of life. In youth the mind is pliable and soft and can be moulded in any form we like. If we lose the morning hours of life we shall have to repent afterwards.

- (B) Draft a dialogue between two women talking about the rising prices of essential commodities.

OR

Draft dialogues between a doctor and a patient.



B. Sc. (

ML-5

(Molecular B

Time : $2\frac{1}{2}$ Hours]

- 1 (A) Answer in
- (i) What
 - (ii) What
 - (iii) What
 - Frank
 - (iv) What
 - nature
 - (v) Who d
 - hypoth

- (B) Discuss in
- (i) Fields
 - (ii) Explai
 - in Sex
 - (iii) Watson
 - (iv) Write

- 2 (A) Answer in
- (i) What
 - (ii) What
 - replicat
 - (iii) What i
 - DNA r
 - (iv) Write d

CCW-807 Seat No. _____

B. Sc. (Sem. V) Examination

October - 2019

MI-501 : Microbiology

(Molecular Basis of Microbial Genetics)

(Core Course)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- (A) Answer in short : (Any **Three**) 6
- What is 'Central Dogma' in biology?
 - What is Chargaff's Law?
 - What is the contribution of Rosalind Franklin?
 - What is the importance of 'Meiosis' in nature?
 - Who did propose 'One Gene-One enzyme' hypothesis? What is it?
- (B) Discuss in detail : (Any **Two**) 12
- Fields of Genetics
 - Explain the mechanism of Cell division in Sex Cells
 - Watson & Crick model of DNA structure.
 - Write about different forms of DNA.
- (A) Answer in short : (Any **Two**) 5
- What is 'Okazaki fragments'?
 - What is 'OriC'? Give its role in DNA replication.
 - What is 'SSB Protein'? Give its role in DNA replication.
 - Write down the function of the Enzymes: Topoisomerases, Helicase.

- (B) Discuss in detail : (Any **Two**) 12
- (i) Accessories required for DNA replication.
 - (ii) Meselson & Stahl's experiment
 - (iii) Models of DNA replication.
 - (iv) Molecular mechanism of DNA replication.

- 3 (A) Answer in short : (Any **Three**) 6
- (i) What is the role of 'Sigma factor' and 'Promoter'?
 - (ii) Write about: Rho dependent termination.
 - (iii) Write about: Structure of tRNA
 - (iv) Write about 'RNA polymerase'. Give its function.
 - (v) What is 'Wobble hypothesis' in Genetic code?

- (B) Discuss in detail : (Any **Two**) 12
- (i) Nature of Genetic codes.
 - (ii) Elongation of Translation step in prokaryotes
 - (iii) Major events of mRNA synthesis.
 - (iv) Write a note on: Lac operon.

- 4 (A) Answer in short : (Any **Two**) 5
- (i) Enlist various types of DNA repair mechanism.
 - (ii) Enlist various types of Mutations.
 - (iii) What is Base analogue? How do they cause mutation?
 - (iv) What is base substitution? How many types are there?

12

(B) Discuss in detail : (Any **Two**)

12

- (i) Describe : SOS repair of DNA.
 - (ii) Discuss : Photo reactivation repair mechanism.
 - (iii) Enlist mutagen and discuss mode of action of Ultraviolet light.
 - (iv) Explain various types of mutation and their advantages.
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CCW-815

Seat No. _____

B. Sc. (Sem. V) Examination

October - 2019

M-502 : Microbiology

(Techniques in Gene Transfer) (Core Compulsory)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- 1 (A) Answer any **two** questions from the following: 6
- (I) Define Plasmid and enlist their types
 - (II) Define: Recombination.
 - (III) Define: F-plasmid, Col-plasmid
 - (IV) Discuss Electrotransformation
 - (V) Define: Jumping Genes
- (B) Answer any **two** questions from the following: 12
- (I) Explain Homologous Recombination
 - (II) Ti Plasmid : Genetic Map, properties, and Application
 - (III) Write a note on Mechanism of Transposition.
 - (IV) Give a detailed note on General properties of plasmid
- 2 A Answer any **two** questions from the following: 6
- (I) Define : Transformation
 - (II) Function of DNA Translocase
 - (III) Linked markers.
 - (IV) What is genetic mapping?
 - (V) Who proved that DNA and not RNA or protein is the genetic material?

(B) Answer any **two** questions from the following: 12

- (I) Application of transformation
- (II) Write a note on Competence
- (III) Griffith's experiment
- (IV) Briefly discuss the four steps in Transformation process.

3 (A) Answer any **two** questions from the following: 5

- (I) Specialized transducing phage as a cloning vehicle
- (II) Define : Temperate Phage
- (III) What is Linkage?
- (IV) Co-Transduction and its significance
- (V) What is Prophage?

(B) Answer any **two** questions from the following: 12

- (I) Specialized Transduction
- (II) Mapping by Co- Transduction.
- (III) Generalized Transduction.
- (IV) U-tube experiments

4 (A) Answer any **two** questions from the following: 5

- (I) Define : Horizontal Gene Transfer?
- (II) Define : Synapsis
- (III) Role of Rac-A Protein
- (IV) Define: Recessive marker

(B) Answer any **two** questions from the following: 12

- (I) Discuss Interrupted mating and Time of entry mapping.
- (II) Isolation of Hfr strains and F' plasmids
- (III) Hfr Mapping
- (IV) Chromosome Transfer mediated by F' Plasmid



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MI-5

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Time : $2\frac{1}{2}$ Hours]

1 (A) Explain A

- (1) Gene
- (2) Here
- (3) Allel
- (4) Trait

(B) Answer A

- (1) Hist
- Gen
- (2) Exp
- exa
- (3) The
- (4) App
- Ag
- stu

2 (A) Explain

- (1) Ha
- (2) Ga
- (3) In
- (4) Ba



CCW-823

Seat No. _____

B. Sc. (Sem. V) Examination

October - 2019

MI-503 : Microbiology

(Classical Genetics)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- 1 (A) Explain Any Two of the following : 6
- (1) Genetics
 - (2) Heredity
 - (3) Allele
 - (4) Trait
- (B) Answer Any Two of the following : 12
- (1) Historical developments in the fields of Genetics
 - (2) Explain Genes & Traits with suitable examples
 - (3) The different branches of Genetics
 - (4) Application of Genetics in the fields of Agriculture, Medicine & Evolutionary studies
- 2 (A) Explain any Two of the following terms : 5
- (1) Haploid
 - (2) Gamete
 - (3) Inheritance
 - (4) Backcross

(B) Answer any **Two** of the following :

12

- (1) Explain Dominance, Codominance & Recessiveness of Genes with suitable examples
- (2) Describe Law of Segregation of Genes
- (3) Dihybrid test cross
- (4) Discuss Law of Independent Assortment

3 (A) Explain any **Two** of the following terms :

5

- (1) Phenotype
- (2) Centromere
- (3) Cytokinesis
- (4) Cell Cycle

(B) Answer any **Two** of the following :

12

- (1) Explain in detail the important steps of Mitosis with illustrative figures
- (2) Sex determination in *Drosophila melanogaster*
- (3) Write a short note on: Chromosome structure & stability
- (4) Write a short note on: Cistron

4 (A) Explain any **Two** of the following terms :

6

- (1) Recon
- (2) Meiosis
- (3) Crossing Over
- (4) Chiasma formation

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(B) Answer a

- (1) Molec
- (2) Write
- (3) Mitot
- (4) Expla
exam

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(B) Answer any **Two** of the following :

12

- (1) Molecular basis of crossing over
 - (2) Write a note on: Tetrad analysis
 - (3) Mitotic recombination and its significance
 - (4) Explain Genetic linkage with suitable examples.
-

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B. Sc. (Sem. V) Examination

October - 2019

MI - 504 : Microbiology

(r-DNA Technology)

Time : 3 Hours]

[Total Marks : 70

- 1 (A) Answer : (Any Two) 12
- (1) PCR as a promising technique for future.
 - (2) Milestones in the field of Genetic engineering.
 - (3) Outline the gene cloning procedure.
 - (4) Discuss contribution of any three significant scientists in the history of gene cloning.
- (B) Answer : (Any Three) 6
- (1) Define gene Cloning.
 - (2) Name two vectors used for gene cloning.
 - (3) Name the most common bacterium used as a host in r-DNA technology and why?
 - (4) What is a Gene bank?
- 2 (A) Answer : (Any Two) 12
- (1) Discuss cDNA Synthesis and its significance.
 - (2) Role of Alkaline Phosphatases, Ligases and Polymerases in gene cloning.
 - (3) Discuss the role of Phages and cosmids as vectors.
 - (4) Shuttle vectors.

(B) Answer : (Any Three)

- (1) Define a clone.
- (2) Name two Restriction endonucleases which produce Blunt ends.
- (3) Taq polymerases.
- (4) What is the source of Ligase enzymes?

6

3 (A) Answer : (Any Two)

- (1) Methods of selection of Recombinants.
- (2) Various methods to prevent re-circularization of open Plasmids before Recombination.
- (3) Site directed Mutagenesis.
- (4) Briefly introduce various techniques of DNA transfer into host cells for gene cloning.

12

(B) Answer : (Any Three)

- (1) Define : transduction.
- (2) Name two most common Recombinant vectors.
- (3) Define : Electroporation
- (4) Name one lysogenic phage.

6

4 (A) Discuss the application of Genetic Engineering in Fields : (Any Two)

- (1) Medicine
- (2) Agriculture
- (3) Sustainable environment
- (4) Food/ Fermentation industry

12

(B) Answer : (Any Three)

- (1) Which human hormones are successfully produced by rDNA technology.
- (2) Name two agricultural products improved by Genetic engineering
- (3) What are Superbugs?

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CW-833]

B. Sc. (Microbiology)

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Bi

Time : Hours]

1 Define or explain terms :

- (a) Bioinformatics
- (b) Secondary D
- (c) Local Alignment
- (d) Name two in study.
- (e) What is Gen
- (f) Proteome and

2 Answer any two

- (a) What is an a it by giving
- (b) Give a brief and its scope
- (c) Mention four
- (d) Discuss the t identity.

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CCW-844

Seat No. _____

B. Sc. (Microbiology) (Sem. V) Examination

October - 2019

Bioinformatics

(Elective)

Time : Hours]

[Total Marks : 50

1 Define or explain any four of the following terms : 12

- (a) Bioinformatics.
- (b) Secondary Database.
- (c) Local Alignment.
- (d) Name two internet sites for bioinformatics study.
- (e) What is GenBank?
- (f) Proteome and proteomics.

2 Answer any two of the following : 13

- (a) What is an alignment search tool? Explain it by giving few examples.
- (b) Give a brief introduction of bioinformatics and its scope.
- (c) Mention four applications of bioinformatics.
- (d) Discuss the terms: similarity, homology and identity.

3 Answer any **two** of the following :

12

- (a) Write a short note on basic computing.
- (b) Write about types of databases and their use.
- (c) Write a short note on Basic Local Alignment Search tool.
- (d) Discuss the role of bioinformatics websites for study and research.

4 Answer any **two** of the following :

13

- (a) Discuss the role of a Biology, Information Technology, and Computer science in bioinformatics.
- (b) Write a short note on various areas of bioinformatics.
- (c) Describe in brief FASTA.
- (d) Discuss about tools of bioinformatics.