CENTRAL UNIVERSITY OF SOUTH BIHAR

Department of Bioinformatics

End-Term Open Book Examination **Session: 2020-2022** **Semester: 2nd** (April-July 2021)

Programme: **M.Sc. Bioinformatics**   Date: **23.07.2021**

Course Code: **MSBIS2004C04**   Course Title: **Genetics and Genomics**

Duration: **2 ½ hours**   Course Credits: **4**

          Maximum Marks: **50**

Instructions:

1. *Preferably write your answers on A4 size plain paper (non-ruled) sheets.*

2. *Write your required details on the first page in the same order as specified below:*

Name*: ....* **Programme***:................................* **Semester***: ....*

Course Title*: ....* **Course Code***:..*

Total No. of pages used*: ....*

Date*: ....* **Signature***: ....*

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3. *After completing the examination, write page number on the top right corner of each page in the format: 1/x, 2/x,......, x/x where 'x' is the total number of pages used. If you have used total 6 pages then your page numbers will be 1/6, 2/6,............ 6/6.*

4. *The students have to write the answers on both side of the sheet (A4 size plain paper non ruled sheet.*

5. *The questions asked here are basically designed to assess the interpretation and application of knowledge, comprehension skills, and critical thinking skills rather than only recalling capacity.*

6. *Total twelve short answer questions of **five points each** are given covering the entire course content.*

7. *Answer **any ten** questions in total in maximum **two and half hours**.*

8. *The maximum limit to answer a question is 200 -300 words.*

9. *At the start of the examination all the questions will be released through e-mail and/or WhatsApp.*

10. *The total time limit to attempt the question paper is **two and half hours**. Along with the two and half hours, extra 30 minutes will be given for IT related activities such as downloading questions, scanning of answer sheets and uploading/emailing them.*

11. *After completing the examination within the stipulated time (two and half hours, scan your answer sheets or click pictures and submit it electronically in **one single file** (preferably PDF) to the course instructor through e-mail (**asheesh@cusb.ac.in**) strictly within stipulated time limit for submission (Three hours). Before submitting, rename your file and keep your name and enrolment number as file name.*

12. ***Please note** that do not use these extra 30 minutes for writing answers. Rather, finish writing as soon as possible within two and half hours and immediately submit your answers in the prescribed way given below. **Due to any reason, if a student is unable to submit the answer sheet file within the time limit, the university will not consider this examination and conduct another examination in the conventional mode whenever the conditions return to normal and circumstances permit or the university deems suitable. No other option or***

13. *In case you feel difficulty in submitting the answer sheet file through e-mail, then you are required to submit it to the concerned course instructor through WhatsApp **within the stipulated time only** and email it later on (within 48 hours) along with the screen shots of WhatsApp submission.*

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Question Paper (Answer any 10 questions)

1. Discuss the genetic method used to find out the genotype of an organism.

2. Explain Mendelian law which refutes the dependence of characters.

3. Describe the phenomenon in which organisms appear to be identical despite having the different genotype.

4. Write a note on various mutations related to the sense of a codon.

5. How to disrupt the activity of a gene using mutation?

6. Discuss chromosomal aberrations observed because of alterations in the number of chromosomes.

7. Briefly explain the sequence assembly method which does not require mapping.

8. Explain the technique in which short primers are used to generate genetic profile.

9. What is the utility of molecular markers in genome sequencing?

10. Write the procedure of DNA sequencing technique which relies on pyrophosphate.

11. Describe single molecule sequencing which immobilizes the DNA polymerase.

12. Differentiate between reference based and de-novo assembly procedures.

06.07.2021