K21U 1101

IV Semester B.Sc. Degree CBCSS (OBE) Regular Examination, April 2021
(2019 Admission Only)
GENERAL AWARENESS COURSE IN BIOTECHNOLOGY
4A03BTC : Biostatistics

Time : 3 Hours

Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark.

1. What is leaf diagram ?   (6×1=6)

2. Describe Karl Pearson's coefficient.

3. Variation.

4. Central tendency.

5. What is qualitative data ?
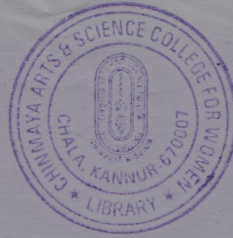
6. Define standard deviation.

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks.   (6×2=12)

7. What is Coefficient of variation ? Find the Coefficient of variation for the following data :

20, 18, 32, 24, 16

8. Explain normal distribution with its merits and demerits.

9. Briefly describe diagrammatic representation of data.

10. Explain the laws of probability.

11. Make a note on student T test.

12. Explain the merits and demerits of central tendency.

13. Give an account on absolute measures of dispersion.

14. Make a note on scatter diagram.

PART – C

Write short essay on **any four** of the following. **Each** question carries **3** marks.   **(4×3=12)**

15. Make a comparative assessment on harmonic mean, arithmetic mean and geometric mean.

16. A basket contains 4 red, 5 blue and 3 green marbles. If 3 marbles are picked up random, what is the probability that either all are green or all are red ?

17. Explain methods of collecting secondary data.

18. Differentiate Hypothesis and Null Hypothesis.

19. What is standard deviation and standard error ?

20. Explain the parameters of binomial distribution.

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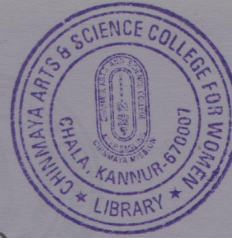
PART – D

Write essay on **any two** of the following. **Each** question carries **5** marks.   **(2×5=10)**

21. Give an account of different diagrammatic representations and tabulations as statistical tools.

22. Draw a pie diagram for the following data and write its significance :

Cat	3
Bat	7
Calotes	12
Insects	23
Worms	17

23. Calculate mean, median and mode from the following data :

Marks	:	10-19	20-29	30-39	40-49	50-59	60-69	70-79
No. of students	:	8	19	29	36	25	13	4

24. Explain the following :

   i) Random Variable

   ii) Addition theorem of probability

   iii) Percentiles

   iv) Type 1 Error.

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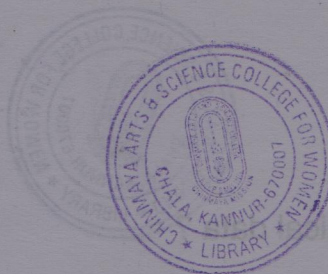
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IV Semester B.Sc. Degree CBCSS (OBE) Regular Examination, April 2021
(2019 Admission Only)
GENERAL AWARENESS COURSE IN BIOTECHNOLOGY
4A04BTC : Bioinformatics

Time : 3 Hours   Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2** or **3** sentence. **Each** question
carries **1** mark.   (6×1=6)
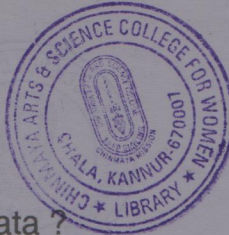
1. DDBJ

2. Gen Bank

3. PDB

4. SWISS PROT

5. NCBI

6. GDB

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks.   (6×2=12)

7. Describe biological data acquisition.

8. What are the different types of Multiple Sequence Alignment (MSA) ?

9. Describe KEGG.

10. What are the goals of human genome project ?

11. Write a note on PROSITE.

12. What do you mean by biological data ?

13. How do you measure sequence similarity ?

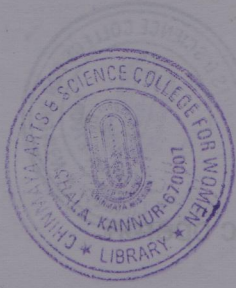14. What is phylogenetic analysis ?

PART – C

Write notes on **any four** of the following. **Each** question carries **3** marks.   **(4×3=12)**

15. Describe Bioinformatics tools.

16. Explain the general overview of NCBI.

17. Differentiate between proteomics and genomics.

18. Write a note on nucleic acids.

19. Explain biological databases.

20. What are the different types of data sequences ?

PART – D

Write notes on **any two** of the following. **Each** question carries **5** marks.   **(2×5=10)**

21. Describe the process of PAGE.

22. What are the implications of proteomics ?

23. Explain the contribution of NHRI research studies.

24. Describe the major findings reported in the rough draft of human genome.

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K21U 1103

IV Semester B.Sc. Degree CBCSS (OBE) Regular Examination, April 2021
(2019 Admission Only)
CORE COURSE IN BIOTECHNOLOGY
4B05BTC : Molecular Biology

Time : 3 Hours   Max. Marks : 40

PART – A

Write short notes on **each** of the following in **2** or **3** sentences. **Each** question carries **1** mark: (6×1=6)

1. Nucleases.

2. What is a replicon ?

3. Pribnow box.

4. Poly A tail.

5. Formylmethionine (fMet).

6. Spontaneous mutation.

PART – B

Write notes on **any six** of the following. **Each** question carries **2** marks.   (6×2=12)

7. Give a detailed account on Griffith experiment.

8. Explain the importance of replisome in DNA replication.

9. Give a detailed account on mechanism involved in Group I splicing.

10. Explain the characteristics of genetic code.

11. Explain the mechanism of mismatch repair.

P.T.O.
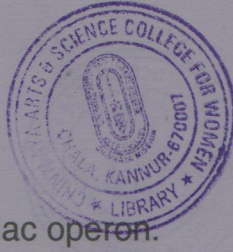
12. Explain the promoter region of lac operon.

13. Catabolite repression.

14. What is transcriptionally active chromatin ?

PART – C

Write short essay on **any four** of the following. **Each** question carries **3** marks.   **(4×3=12)**

15. Explain in detail about Euchromatin and heterochromatin.

16. Discuss the first stage of DNA replication.

17. Explain the role of various vaccines in prophylactic medicine.

18. Compare gene regulation in prokaryotes and eukaryotes.

19. Explain the mechanism behind excision repair.

20. Explain the steps involved in 5′ capping.

PART – D

Write essay on **any two** of the following. **Each** question carries **5** marks   **(2×5=10)**

21. Explain the various steps involved in prokaryotic transcription.

22. Explain the process of protein synthesis.

23. Explain the tryptophan operon.

24. DNA is the genetic material explain it with supporting experiments.
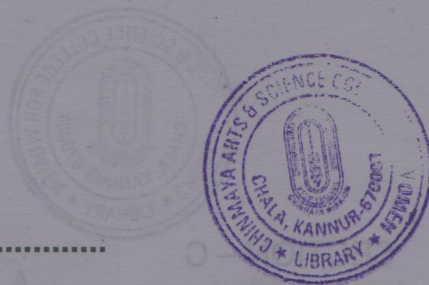
K21U 1099

IV Semester B.Sc. Degree CBCSS (OBE) Regular Examination, April 2021
(2019 Admission Only)
COMPLEMENTARY ELECTIVE COURSE IN BIOCHEMISTRY
4C04BCH: Biochemistry – IV

Time : 3 Hours

Max. Marks : 32

SECTION – A

Answer **all** questions. **Each** question carries **1** mark. (5×1=5)

1. State the physiological function of hormones.

2. Which biomolecule act as enzymes ?

3. Define plant hormones.

4. Name the origin of estrogen.

5. Define zymogen. Give an example.

SECTION – B

Answer **any 4** questions. **Each** question carries **2** marks. (4×2=8)

6. State two functions of auxin.

7. How is apo enzyme different from holo enzyme ?

8. Give the curve of rate of reaction versus [S] for an allosteric enzyme.

9. Give two examples for enzymes used for diagnostic purpose.

10. Name the sites of production of gibberellins.

11. Define Km.

P.T.O.
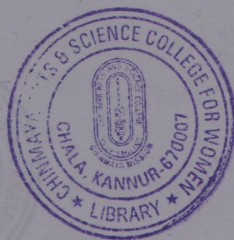
SECTION – C

Answer **any 3** questions. **Each** question carries **3 marks**.   (3×3=9)

12. Write down Michaelis Menten equation. State its significance.

13. Explain induced fit model with figure.

14. Explain the energy mechanism of enzyme reaction.

15. Give any three salient features of active site of an enzyme.

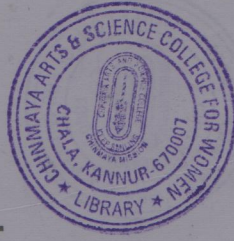16. How are hormones classified according to chemical nature ?

SECTION – D

Answer **any 2** questions. **Each** question carries **5 marks**.   (2×5=10)

17. Enumerate the factors affecting enzyme activity.

18. Describe the tryptophan dependant biosynthesis of auxin.

19. Which are the different types of enzyme inhibition ?

20. Describe the biosynthesis of thyroid hormones.

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K21U 1135

IV Semester B.Sc. Degree CBCSS (OBE) Regular Examination, April 2021
(2019 Admission Only)
COMPLEMENTARY ELECTIVE COURSE IN MICROBIOLOGY
4C05 MCB : Applied Microbiology II

Time : 3 Hours
Max. Marks : 32

PART – A
(Short Answers)
(**5** questions × **1** mark each = **5** marks)

Answer **all** the questions.

1. VAM

2. Biogas

3. Vermicomposting

4. COD

5. Symbiosis

PART – B
(Short Essays)

Answer **any 4** questions. (**4** questions × **2** mark each = **8** marks)

6. Bioremediation

7. Methanogenesis

8. Azola-Anabaena system

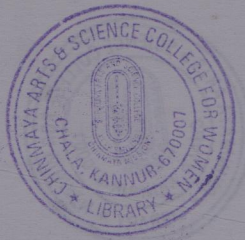9. Indicator Organisms

10. Superbug.

PART – C
(Essay)

Answer **any 3** questions. (**3** questions × **3** mark each = **9** marks)

11. Mycorrhizae

12. Non symbiotic Nitrogen fixation

13. Impact of Pesticides on soil flora

14. Septic Tank

15. Sanitary Landfills.

PART – D
(Long Essay)

Answer **any 2** questions. (**2** questions **× 5** mark each = **10** marks)

16. Solid Waste Management.

17. Microbial inoculants and their application in agriculture.

18. Give a brief account on Biofertilizers.

19. Microbial degradation of Pesticides.

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