

2022

5th Semester Examination
ZOOLOGY (Honours)

Dengue
virus
(DENV)

Paper : DSE 1-T

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

[Animal Behavior and Chronobiology]

Group - A

1. Answer any *five* of the following questions : $5 \times 2 = 10$

- (a) What is telotaxy ?
- ✓(b) What is fixed action pattern ?
- ✓(c) Distinguish between innate and learned behavior.
- ✓(d) Write notes on advantages of the Waggle dance.
- (e) Distinguish between endogenous rhythm and exogenous rhythm.
- ✓(f) What are circannual rhythms ?

P.T.O.

✓(g) Write note on Entertainment and Zeitgebers.

(h) Distinguish between semelparity and iteroparity.

Group - B

2. Answer any *four* of the following questions : $4 \times 5 = 20$

✓(a) Write down the adaptive significance of biological clocks.

✓(b) Describe Pavlov's experiment and state its significance.

(c) With the help of an example discuss the phenomenon of male rivalry in sexual selection. Do the females have any influence on the outcome of male rivalry ? $3+1$

✓(d) With the help of suitable example discuss female choice in sexual selection.

✓(e) What is habituation ? Write down the adaptive value of habituation.

(f) Explain the significance of sign stimulus in eliciting a fixed action pattern with any one sample.

Group - C

3. Answer any *one* of the following questions : $1 \times 10 = 10$

(a) What is operant learning ? State its working principle. Explain how it is different from that of latent learning. $2+5+3$

(3)

✓ (b) Define imprinting. Discuss different type of imprinting. Distinguish between filial and sexual imprinting. Add a note on the significance of imprinting.

1+3+2+4

Or

[Microbiology]

Full Marks : 40

Time : Two Hours

Group - A

1. Answer any *five* of the following questions : $5 \times 2 = 10$

- (a) Differentiate between prokaryotic pathogens and eukaryotic pathogens with examples.
- (b) Briefly mention about the structure of peptidoglycan.
- (c) Write a short note on glycocalyx.
- (d) What are prions ? Give example.
- (e) Differentiate between plasmids and episomes.
- (f) Write the name of normal flora, which is present in our body with beneficial functions.
- (g) What do you mean by F^+ and Hfr ?
- (h) Write note on cytoplasmic inclusions

Group - B

2. Answer any *four* of the following questions : $4 \times 5 = 20$

- (a) Describe Whittaker's kingdom concept with suitable example.
- (b) What is Gram staining ? Write down the

procedure of the same with appropriate explanation.

- (c) Why Acid fast staining is required ? Explain it with the procedure and example.
- ✓(d) What is Transformation ? How it occurs ? Write its one application.
- ✓(e) Compare the result between the mating of F^+ and F^-/Hfr and F^- .
- (f) Explain selective media with example.

Group - C

2. Answer any *one* of the following questions : $1 \times 10 = 10$

- ✓(a) Name of pathogen, symptoms, pathogenesis, mode of action and preventive measures of AIDS disease.
 - (b) Write about physical conditions required for growth of bacteria in detail.
-

2022

5th Semester Examination
ZOOLOGY (Honours)

Paper : C 12-T

[Genetics]

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

1. Answer any *five* of the following questions : $5 \times 2 = 10$

✓ (a) What is replicative transposon ? Give an example. 1+1

(b) Differentiate auxotrophs from prototrophs.

✓ (c) Give example of one monosomic and one trisomic condition in human.

(d) What is frame shift mutation ?

✓ (e) What is Dosages compensation ?

(f) What is transposons ?

P.T.O.

✓(g) What is incomplete dominance examples ?

✓(h) What is pleiotropy ?

Group - B

2. Answer any *four* of the following questions : $4 \times 5 = 20$

✓(a) Describe the basic features of an ISI element.
Comment on its mechanism of transposition.

3+2

✓(b) Briefly discuss the molecular mechanism of dosage compensation in human/mammal.

(c) The result of a test cross experiment shows 15 progenies with new combination and 108 progenies with parental combination. Calculate recombination frequency. What do you understand by 'coupling' and 'repulsion'? 2+3

(d) How does missense mutation differ from neutral mutation ? What is tautomeric shift ? Cite one example of base analog mutagen. 3+1+1

✓(e) How does nondisjunction affect chromosome number ?

✓(f) How is sex determined in Drosophila ? What is sex of XXY Drosophila ?

Group - C

3. Answer any *one* of the following questions : $1 \times 10 = 10$

(a) What is complementation test ? Discuss the Benzer's experiment with rII region of T4 bacteriophage for determining whether two rII mutants belong to same gene or not. $2+8$

✓(b) What is a chromosomal aberration ? What are the types of chromosomal aberrations ? Write a note on different chromosomal trisomy and their symptoms. $2+3+5$

2022

5th Semester Examination
ZOOLOGY (Honours)

Paper : C 11-T

[Molecular Biology]

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

1. Answer any *five* of the following questions : $5 \times 2 = 10$

✓ (a) What do you mean by TATA Box and CAAT Box ?

Q (b) Write the significance of histone methylation.

✓ (c) What do you mean by Degeneracy of genetic code ?

✓ (d) Why DNA is considered nucleic acid ?

✓ (e) Differentiate between Activators and Enhancers.

(f) What is salting out of DNA ?

P.T.O.

- (e) Why is DNA replication called semi-discontinuous? Briefly describe the 'Rho independent' termination of transcription. 3+2
- (f) Describe the process of intron removal by spliceosome. What is Shine-Dalgarno sequence? 4+1

Group - C

3. Answer any *one* of the following questions : 1×10=10

- (a) Give a clear diagram of OriC. Write down the significance of sliding clamp in DNA replication. Describe lagging strand DNA replication with a suitable diagram. Why is DNA replication considered semiconservative? 2+2+4+2
- (b) Differentiate between prokaryotic and eukaryotic transcription. What is RNA editing? Mention any two applications of Southern Blotting Technique. Illustrate the process of RNA charging during translation in prokaryotes. 2+3+2+3
-