Enrollment ID: _____

NAVRACHANA UNIVERSITY
School of Liberal studies and Education
(BSc. Program)
End Semester Examination November 2017
SY-BSc 3rd Semester

Course Title: Evolutionary biology and Biotic interaction (ZO201) **Marks: 40**
Date: 20/11/2017 **Time: 3:30 pm -5:30 pm**

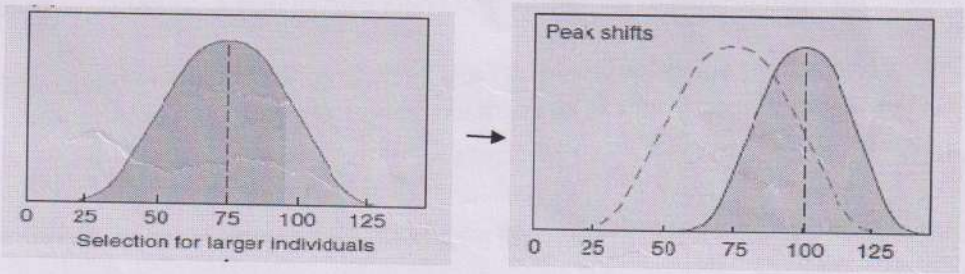
Important Instructions

1. *All the Questions are Compulsory*
2. *Please read the questions carefully and answer accordingly*
3. *Draw a neat and labeled diagram wherever necessary*

Q1. Choose the correct option **(1 × 5= 5 M)**

1. Industrial melanism is an example of:
   a. Drug resistance
   b. Darkening of skin due to smoke from industries
   c. Protective resemblance with the surroundings
   d. Defensive adaptation of skin against ultraviolet radiations.
2. Sequence of which of the following is used to know the phylogeny?
   a. m-RNA c. f-RNA
   b. r-RNA d. DNA
3. According to fossils discovered up to present time origin and evolution of man started from
   a. France c. Africa
   b. Java d. China
4. Swan neck flask experiment was performed by :
   a. Oparin and Haldane c. Aristotle
   b. Darwin d. Louis Pasteur
5. Miller and Urey performed an experiment to prove origin of life. They look for gases NH3 and H2 along with?
   a. N2 and H2O c. CO2 and N2
   b. H2O and CH4 d. CH4 and N2

Q2. Fill in the blanks **(1 × 6= 6 M)**

1. .....evolved into mitochondria and .....evolved into chloroplast.
2. According to .....evolutionary theory, there are long periods without significant evolutionary changes interrupted by short episodes of rapid evolution.
3. Plants growing on cold soil are called as .....
4. 

   is an example of .....selection

5. ..... + Oxygen $\xrightarrow{?}$ oxyluciferin + light
6. An association in which one population of organisms benefits while the other is neither harmed nor helped is called a .....association.

Q3. Match the following **(0.5 × 6 =3 M)**

a) Archeoptryx	i) Dominance of invertebrate
b) Abiogenesis	ii) Neutral theory
c) Cenozoic era	iii) connecting link between reptiles and birds
d) Cambrian period	iv) theoretical model for chemical evolution
e) Motoo kimura	v) evolution of humans
f) Oparin and J.B.S.Haldane	vi) life existed from the non living matter

Q4. Answer the following questions **(1× 6= 6 M)**

1. Define Cladogenesis.
2. List out 4 major causes of extinction.
3. Draw a cladogram representing tetrapod evolution.
4. Explain genetic drift.
5. State different pre zygotic reproductive isolation mechanism.
6. What is coevolution and give an example?

Q5. Answer the following questions in short **(3× 2=6 M)**

1. Explain allopatric speciation with help of an example?
2. How comparative Biochemistry can help in understanding the process of macroevolution?
3. Explain endosymbiotic theory?

Q6. Write a short note (Any 1) **(1× 3=3 M)**

1. Mimicry and its types
2. Polar adaptations in birds

Q7. Answer the following questions in detail (Any 3) **(3× 3= 9M)**

1. What is Macroevolution and state the patterns involved with macroevolution?
2. State the different methods for phylogenetic tree construction and explain each of them in detail?
3. Discuss the comparative anatomical evidences of evolution.
4. What is molecular evolution and state its significance.

Q8. Explain the resistance of bacteria to antibiotics and insects to pesticides using concept of natural selection. **(2M)**

a) Explain why an individual bacterium cannot on its own change from sensitive to resistant to antibiotics.
b) Choose two actions you think would be most likely to control the increase in antibiotic resistance, and support your choices with examples from your own experience.

**********ALL THE BEST**********