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**M.Sc. (THIRD SEMESTER)**  
**EXAMINATION, Dec. - Jan., 2021-22**  
**ZOOLOGY**  
**(Paper Third)**  
**Environmental Physiology and Population Ecology**

*[ Time : Three Hours ]**[ Maximum Marks : 80 ]***Note : Attempt all sections as directed.**

**Section - A**  
**(Objective/Multiple Choice Questions)**  
**(1 mark each)**

**Note : Attempt all questions.****Choose the correct answer :**

1. Which of the following is not a characteristic of population?
  - (A) Sex Ratio
  - (B) Natality
  - (C) Mortality
  - (D) Stratification

**P.T.O.**

2. Lincoln index is used to measure -
  - (A) Population Size
  - (B) Population mortality rate
  - (C) Population natality rate
  - (D) Population density
3. The ability of a population of living species to increase under ideal environmental condition is called -
  - (A) Biotic potential
  - (B) Carrying capacity
  - (C) Natality
  - (D) Absolute natality
4. The formula for exponential population growth is -
  - (A)  $dN / dt = rN$
  - (B)  $dt / dN = rN$
  - (C)  $dN / rN = dt$
  - (D)  $rN / dN = dt$
5. A human population is small, there is a greater chance of
  - (A) Gene flow
  - (B) Genetic drift
  - (C) Natural selection
  - (D) Mutation

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6. Which of the following survivorship curve is suitable for the organisms who breeds several times during the course of their life span -
- (A) Type iv
  - (B) Type iii
  - (C) Type ii
  - (D) Type i
7. The hump of camel stores———in it as a food reserve .
- (A) Fats
  - (B) Protein
  - (C) Non
  - (D) Starch
8. At Mountains, there is —— Oxygen content and people feel breathless and nauseous.
- (A) Low
  - (B) Average
  - (C) High
  - (D) None

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9. Certain changes in an organism occur over a short period of time. They help to adjust to the changes in its surroundings. This is called -
- (A) Acclimatization
  - (B) adaptation
  - (C) Puberty
  - (D) None
10. At what height does a person experience altitude sickness?
- (A) > 3500m
  - (B) < 3500m
  - (C) > 500feet
  - (D) < 500feet
11. The force which demands for change in body regulation is -
- (A) stimulus
  - (B) strain
  - (C) Force
  - (D) Stress

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12. \_\_\_\_\_ is defined as irreversible deformation of body.

- (A) Plastic Strain
- (B) Elastic strain
- (C) Adaptation
- (D) Stress

13. Stages of stress adaptation is called -

- (A) General adaptation Syndrom
- (B) Adaptation
- (C) Physiological response
- (D) Compensation

14. \_\_\_\_\_ are produced by adrenal gland in response to stress.

- (A) Corticosteroides
- (B) Adrenalin
- (C) Theyroxine
- (D) Androgens

15. \_\_\_\_\_ is the controller of stress response mechanism.

- (A) Pituitary gland
- (B) Hypothalamus
- (C) Adrenal gland
- (D) Thyroid gland

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P.T.O.

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16. Atmosphere consist of -

- (A) lithosphere + hydrosphere
- (B) lithosphere + strato sphere + hydrosphere
- (C) Troposphere + stratosphere + ionosphere
- (D) None

17. During exercise plasma volume-

- (A) Decreases
- (B) Increases
- (C) Stays the same
- (D) None

18. Unloading of O<sub>2</sub> from haemoglobin into active muscle is facilitated by :

- (A) Decreased pH
- (B) Increased temperature
- (C) Both of the above
- (D) None of the above

19. Which Asana is helpful in maintaining normal blood pressure?

- (A) Shavasana
- (B) Padmasana
- (C) Sheershasana
- (D) Shalabhasana

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20. Dhanurasana, Matsyendrasana, Shalabhasana and surya -namaskar are helpful in -

- (A) Stomach Pain
- (B) Asthama
- (C) Diabetes
- (D) Cancer

**Section - B**

**(Very short answer type questions)**

**(2 marks each)**

**Note : Attempt all question :**

1. Define ecological density.
2. Define ecotone.
3. Explain coping capacity.
4. Explain stress regulators.
5. Define acclimatization.
6. Define hypoxia.
7. Define Dhanurasana.
8. Explain the Euryhaline animals with examples.

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**Section - C**

**( Short Answer Type Questions )**

**(3 marks each)**

**Note : Attempt all questions**

1. Explain different types of stressors.
2. Explain the factors for regulation of population density.
3. Explain the mechanism of lthosere.
4. Describe the mechanism of adaptations.
5. Describe the stress tolerance.
6. Write down the effect of meditation.
7. Explain osmoregulation in marine animals.
8. Write down the differences between elastic and plastic strain.

**Section - D**

**(Longe answer type questions)**

**(5 marks each)**

**Note : Attempt all questions**

1. Explain the process of population evolution?

Or

Explain the community dynamics?

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2. Explain estuary adaptations

Or

Describe the mechanism of adaptations?

3. Describe the specific features of stress physiology?

Or

Explain the stress avoidance and stress tolerance?

4. Describe the physiological response to hypoxia

Or

Explain the mechanism of osmoregulation in aqueous  
habitate?