

**7244**

**M. Sc. II<sup>nd</sup> SEMESTER EXAMINATION, 2019**

**ZOOLOGY**

**Paper – IV**

**Animal Physiology and Immunology**

Time: Three Hours

Maximum Marks: 80

**PART – A (खण्ड – अ)**

[Marks: 20]

*Answer all questions (50 words each).*

*All questions carry equal marks.*

सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न का उत्तर 50 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

**PART – B (खण्ड – ब)**

[Marks: 40]

*Answer five questions (250 words each),*

*selecting one from each unit. All questions carry equal marks.*

प्रत्येक इकाई से एक-एक प्रश्न चुनते हुए, कुल पाँच प्रश्न कीजिए।

प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

**PART – C (खण्ड – स)**

[Marks: 20]

*Answer any two questions (300 words each).*

*All questions carry equal marks.*

कोई दो प्रश्न कीजिए। प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

## **PART – A**

- Q.1 (i) What is hibernation?  
(ii) Define Thermoregulation.  
(iii) What are osmoregulators?  
(iv) Give the example of osmoconformers.  
(v) Define inspiration and expiration.  
(vi) What is “Bohr Effect”?  
(vii) What is antigen?  
(viii) What is innate immunity?  
(ix) Define AMI.  
(x) What is MHC?

## **PART – B**

### **UNIT – I**

- Q.2 Explain the control of body temperature.  
Q.3 Write a brief account on endotherms and ectotherms.

### **UNIT – II**

- Q.4 Write a brief note on osmoregulation in aquatic environment with suitable examples.  
Q.5 Explain counter current mechanism in production of concentrated urine.

### **UNIT – III**

- Q.6 Give an account of chloride shift.  
Q.7 Describe the role of hemoglobin in regulation of body pH.

### **UNIT – IV**

- Q.8 Write a brief account on structure and functions of various antibodies.  
Q.9 Explain primary and secondary lymphoid organs.

### **UNIT – V**

- Q.10 Give a detail account of immunodeficiency disease.  
Q.11 Explain cell mediated immunity.

## **PART – C**

- Q.12 Explain the counter current heat exchange.  
Q.13 Discuss hormonal control of regulation of water and salt balance.  
Q.14 Explain O<sub>2</sub> and CO<sub>2</sub> transport in blood.  
Q.15 Write a short notes on the following:  
(i) T. cells  
(ii) Complement system  
Q.16 What is vaccine? Explain in detail account of vaccines.