Enrollment No._____

**NAVRACHANA UNIVERSITY**
*a UGC recognized University*

**School:** School of Science
**Program/s:** BSc.-LS
**Year:** 3rd **Semester:** 5th
**Examination:** End Semester Examination
**Examination year:** December - 2022

**Course Code:** LS302, **Course Name:** Defense Mechanisms in Plants and Animals.
**Date:** 06/12/2022 **Total Marks:** 40
**Time:** 14.30 to 16.30 pm **Total Pages:** 02

***Instructions:***

- *Write each answer on a new page.*
- *Draw the diagram wherever necessary*
- *Stick to the Word Limit given in the Questions.*

| Q. No. | Details | Marks | CO | BTL |
|---|---|---|---|---|
| Q.1 | **Choose the Correct Option.**<br>1. **Which of the following immune system components would NOT recognize a macromolecule epitope (binding site)?**<br>a) Phagocyte b) T lymphocyte c) B lymphocyte d) Antibody<br>2.**Find the correct statement.**<br>P. Adaptive Immunity has a remarkable property of "memory."<br>Q. The major agents of adaptive immunity are macrophages and neutrophils while major agents of Innate Immunity lymphocytes and antibodies.<br>R. Adaptive Immunity plays a role in Antigenic challenging conditions<br>a) Only P b) P & Q c) Only Q d) P, Q,& R e) Q & R<br>3.**The mechanism through which NK cells kill the antigen via_____.**<br>a) Normal host cells<br>b) Cells with increased expression of MHC-I molecules<br>c) Cells with decreased expression of MHC-I molecules<br>d) Intracellular pathogens<br>4. **Which of the following is the considered to be best at presenting antigen to T helper cells?**<br>a) Dendritic cell with MHC I b) Dendritic cell with MHC II | 1x6=6 | CO1, CO2, CO3, CO4, CO5 | BTL1, BTL2, BTL3 |

| | | | | |
|---|---|---|---|---|
| | c) Macrophage with MHC I d) Macrophage with MHC II<br>5. **SAR stands for…**<br>a) Systemic Acquired Resistant.<br>b) Sequence Acquired Resistant.<br>c) System Acquired Resistance.<br>d) Sequence Acquired Resistance.<br>6. **Excellent scavenger of singlet oxygen is**<br>a) β – carotene b) α – tocopherol<br>c) glutathione d) superoxide dismutase | | | |
| **Q.2** | **Answer the following (20-30 words only per answer)**<br>1. List the surface markers of all the immune cells.<br>2. Differentiate between monocytes and macrophages.<br>3. What are the different antigens that can be found in human body?<br>4. Why plants produce antioxidants?<br>5. Role of reactive oxygen species is a double edged sword. Explain the statement. | 2x5=10 | CO1, CO2, CO3, CO4, CO5 | BTL1, BTL2, BTL3 |
| **Q.3** | **Answer the following – *any four* (max 300-350 words per answer)**<br>1. What happens when an antigen enters the human body? Discuss the various events in detail explaining each and every minute detailing of it.<br>2. Explain the structure of MHC molecule, how does processing of antigen happens with the help of it.<br>3. Explain signal transduction pathway.<br>4. Which are the different environmental conditions that can cause stress in plants? | 3x4=12 | CO1, CO2, CO3, CO4, CO5 | BTL1, BTL2, BTL3 |
| **Q.4** | **Answer the following (max 500 words per answer).**<br>1. Explain the different types of Antibodies their structures, concentration, and its effector functions.<br>**OR**<br>2. Explain the following process that and its importance for the immune system:<br>a) Inflammation<br>b) Maintenance of Tissue Homeostasis<br>c) Link towards innate and Adaptive system.<br>3. Describe the different mechanisms adapted by the plants in response to the attacks by herbivores and pathogens. | 6x2=12 | CO1, CO2, CO3, CO4, CO5 | BTL1, BTL2, BTL3 |

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