

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BPH
BRANCH: PHARMACY

SEMESTER: VI
SESSION: SP/2022

SUBJECT: BP605T Pharmaceutical Biotechnology

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
 2. Before attempting the question paper, be sure that you have got the correct question paper.
 3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
 4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.
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PART-I

(Objective types questions: Answer all questions)

Q1. Multiple Choice questions

(10 x 1 = 10 Marks)

- I. Chlamydia can prevent the formation of phagolysosomes and therefore can
 - a) Avoid being phagocytized
 - b) Avoid destruction by complement
 - c) Prevent adherence
 - d) Avoid being digested
 - e) None of the above
- II. Neutrophils, basophil, lymphocytes, eosinophil and monocytes are examples of
 - a) Physical barrier
 - b) Cellular barriers
 - c) Cytokine barriers
 - d) Physiological barriers
- III. Which of the following cells is involved in cell-mediated immunity?
 - a) T-cells
 - b) B-cells
 - c) Mast cells
 - d) Both T and B cells
- IV. If the following are placed in the order of occurrence, which would be the third step?
 - a) activation of C5
 - b) cell lysis
 - c) antigen-antibody reaction
 - d) activation of C3
 - e) activation of C2 through C4
- V. Which antibodies protect the fetus and newborn?
 - a) IgA
 - b) IgD
 - c) IgE
 - d) IgG
 - e) IgM
- VI. Which of the following cell is made deficient of HGPRT in monoclonal antibody production?
 - a) B Cells
 - b) Myeloma cells
 - c) Hybrid cells
 - d) none of these
- VII. Which of the following is a humanized monoclonal antibody?
 - a) Rituximab
 - b) Alemtuzumab
 - c) Infliximab
 - d) Adalimumab
- VIII. Hepatitis vaccine is prepared using a portion of the viral protein coat that is produced by a genetically modified yeast. It is an example of _____
 - a) Toxoid vaccine
 - b) Virus-like Particle Vaccine
 - c) Conjugated vaccine
 - d) Polysaccharide vaccine
- IX. Triple antigen contains
 - a) Diphtheria and Typhoid toxoid and killed cells of Pertussis or Pertussis Antigen
 - b) Diphtheria and Tetanus toxoid and killed cells of Pertussis or Pertussis Antigen

- c) Diphtheria and Pneumonia toxoid and killed cells of Typhoid
 - d) Diplococcus and Pneumonia toxoid and Tetanus Antigen
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- X. Which of these biosensors use the principle of heat released or absorbed by a reaction?
 - a) Potentiometric biosensor
 - b) Optical biosensors
 - c) Piezo-electric biosensors
 - d) Calorimetric biosensors

Short answer type questions

(5 x 2 = 10 Marks)

- Q2. What are the essential features of a plasmid?
- Q3. Define active and passive immunity.
- Q4. What are the functions of an impeller and baffle in a fermenter?
- Q5. Differentiate between vaccine and sera.
- Q6. What is the main difference between endonuclease and exonuclease activity?

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

- Q7. Illustrate the biomedical applications of biosensors
- Q8. Elaborate the process of microencapsulation.
- Q9. Describe mechanisms of different antigen-antibody reactions
- Q10. Discuss the process of phagocytosis in the light of immunological reactions.
- Q11. Write a short note on design of a fermenter.
- Q12. Describe the process of gel electrophoresis.
- Q13. Detail out the strategies of recombinant insulin preparation?
- Q14. What is the principle of creation of hybridoma cells?
- Q15. Discuss the principle and method of indirect ELISA

PART-III

Long Answers

(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q16. Discuss the process of complement activation by Classical and Alternative Pathway
- Q17. Illustrate the process of PCR along with its application.
- Q18. Elaborate about the principle and method of Western Blotting

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