

**4/H-64 (iv) (Syllabus-2015)**

**2 0 1 9**

**( April )**

**BIOCHEMISTRY**

**( Honours )**

**( Cell Biology and Physiology )**

*Marks : 56*

*Time : 3 hours*

*The figures in the margin indicate full marks  
for the questions*

Answer **four** questions, taking **two** from each Part

**PART—A**

**( Cell Biology )**

1. (a) How do prokaryotic and eukaryotic cells differ from each other? Draw the labelled diagrams of a typical prokaryotic cell and a eukaryotic cell showing different cell components. 3+6=9
- (b) What are bacteriophages? Using suitable diagram, describe the structure of any common bacteriophage. 1+4=5

*( Turn Over )*

( 2 )

2. What is a cell cycle? What are its various phases? How are these phases regulated?  $1+8+5=14$
3. Write notes on the following :  $7+7=14$
- (a) Roles of cilia and flagella in cell motility
  - (b) Apoptosis
4. Discuss the principles and applications of the following techniques :  $7+7=14$
- (a) Differential centrifugation
  - (b) Freeze fracture technique

PART—B

( Physiology )

5. (a) Discuss the mechanism of digestion and absorption of lipids. 9
- (b) Describe the important features of red blood cells. 5
6. (a) What is urine? Explain the process of formation of urine in mammals.  $1+7=8$
- (b) Describe the process of nerve impulse transmission. 6

( 3 )

7. Explain the following with illustrations :  $3+3+8=14$
- (a) Second messenger
  - (b) Paracrine signaling
  - (c) Mechanism of steroid hormone action

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