

2nd copy

3/EH-63 (iii) (Syllabus-2015)

2016

(October)

ZOOLOGY

(Elective/Honours)

**(Animal Physiology, Endocrinology
and Biochemistry)**

Marks : 56

Time : 3 hours

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

Answer Question No. 1 and any four from the rest

1. Write in brief on any three of the following :

4×3=12

- (a) Significance of carbohydrates**
- (b) Hormones of endocrine pancreas**
- (c) Reflex action and reflex arc**
- (d) Structure of mammalian heart**
- (e) Induced-fit hypothesis of enzyme—
Koshland to define the mechanism of
enzyme-substrate binding**

(2)

2. What is digestion? Discuss the mechanism of digestion and absorption of carbohydrates in mammals. $2+5+4=11$
3. Describe the structure of a nephron with a suitable diagram. Explain the mechanism of urine formation in mammals with the help of a suitable diagram. $4+7=11$
4. Describe the structure of the adrenal gland. Name the hormones secreted by this gland and state their important functions. $3+3+5=11$
5. Briefly discuss the mechanism of transportation of long-chain fatty acids from the cytosol into the mitochondrial matrix for oxidation. Explain the pathway of β -oxidation of fatty acids and calculate the ATP yield from the oxidation of one mole of palmitic acid ($C_{16}H_{32}O_2$). $3+7+1=11$
6. What are vitamins? Write down the composition, source and functions of fat-soluble vitamins. $2+9=11$
7. Write a note on sliding filament theory of skeletal muscle contraction with suitable diagrams. $3+8=11$

(3)

8. Write short notes on any *two* of the following : $5\frac{1}{2} \times 2 = 11$
- (a) Double-helical structure of DNA
- (b) Functions of mammalian blood
- (c) Important properties of enzymes
- (d) Ultrastructure of a neuron
