

2014

ZOOLOGY

( Major )

Paper : 5.3

Full Marks : 60

Time : 3 hours

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

1. Choose the correct answer : 1×7=7

(a) The pituitary gonadotropins are

- (i) lipoproteins
- (ii) glycoproteins
- (iii) metalloproteins
- (iv) catecholamines

(b) The stimulation of intestinal absorption of dietary calcium is the principal biological role of

- (i) parathyroid hormone
- (ii) thyronine
- (iii) calcitonin
- (iv) calcitriol

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- (c) Which of the following is not a physiological action of insulin?
- (i) Decreased gluconeogenesis in the liver
  - (ii) Increased glucose entry in muscle
  - (iii) Decreased glucose entry in adipose tissue
  - (iv) Increased amino acid uptake in muscle
- (d) The most potent mineralocorticoid secreted by the adrenal cortex is
- (i) corticosterone
  - (ii) aldosterone
  - (iii) cortisol
  - (iv) 11-deoxycorticosterone
- (e) Dendritic cells present antigens to
- (i) macrophages
  - (ii) naive T lymphocytes
  - (iii) naive B lymphocytes
  - (iv) neutrophils

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- (f) The antibody class, most effective in complement activation is
- (i) IgA
  - (ii) IgE
  - (iii) IgG
  - (iv) IgM
- (g) An example of a live attenuated vaccine is
- (i) hepatitis B vaccine
  - (ii) oral poliovirus vaccine
  - (iii) whole-cell pertussis vaccine
  - (iv) tetanus toxoid

2. Distinguish between the following :  $2 \times 4 = 8$

- (a) Central and Peripheral lymphoid organs
- (b) Helper T cells and Cytotoxic T cells
- (c) Myxedema and Graves' disease
- (d) Oxytocin and Vasopressin

3. Write short notes on (any three) :  $5 \times 3 = 15$

- (a) Burnet's clonal selection theory
- (b) Antigen-antibody interactions
- (c) Autoimmune diseases
- (d) Mechanism of steroid hormone action
- (e) Histology of the endocrine pancreas

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4. What is the hypothalamohypophyseal axis? Discuss the role of hypothalamic factors in the regulation of the endocrine function of the anterior pituitary. 3+7=10

Or

Describe the histology and endocrine functions of the ovary. 5+5=10

5. What is innate immunity? Discuss the mechanisms of innate host defense. 2+8=10

Or

What are antigens? Discuss the properties that an antigen must possess to be capable of eliciting an adaptive immune response. 2+8=10

6. How are naive T cells activated to form effector T cells? Discuss the role of cytotoxic T cells in host defense. 4+6=10

Or

Discuss the respective roles of insulin and glucagon in glucose homeostasis. 5+5=10

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