

ANIMAL HUSBANDRY AND VETERINARY SCIENCE

PAPER—I

Time Allowed : Three Hours

Maximum Marks : 200

**QUESTION PAPER SPECIFIC INSTRUCTIONS**

**Please read each of the following instructions carefully  
before attempting questions**

There are EIGHT questions in all, out of which FIVE are to be attempted.

Question Nos. 1 and 5 are compulsory. Out of the remaining SIX questions, THREE are to be attempted selecting at least ONE question from each of the two Sections A and B.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Neat sketches may be drawn, wherever required.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

Answers must be written in ENGLISH only.

## SECTION—A

1. Write short notes on the following : 8×5=40
- (a) Biological value of protein
  - (b) Respiratory quotient as an indicator of nutrient metabolism
  - (c) General functions of minerals in livestock
  - (d) Mechanism of milk secretion in udder of cow
  - (e) Chemical properties of ejaculated semen
2. (a) What are the differences between fat-soluble and water-soluble vitamins? 10
- (b) Describe the physiological roles vitamin A plays in animals. Give a brief overview of vitamin A deficiency in livestock and poultry. 10
- (c) What is the importance of NPN in practical ruminant feeding? How is urea metabolized in the rumen? Describe the factors affecting effective utilization of urea in ruminants. 5+5+10=20
3. (a) Describe the inherent defence mechanism against extreme heat in crossbred cows. Enlist the management approaches for combating heat stress in cows. What are the effects of thermal load on the reproductive performance of buffaloes during summer season? 10+5+5=20
- (b) What are the mechanisms involved in regulation of the rate of spermatogenesis in cow bulls? Which are the hormones involved in this process? 10
- (c) Why is cock spermatozoa unsuitable for cryopreservation compared to bull spermatozoa? Discuss the importance and the process of capacitation of spermatozoa. 10
4. (a) Elucidate the role of various hormones in mammary gland development. 10
- (b) Describe the methods used for determination of true metabolizable energy (TME) value of feeds for poultry. 10
- (c) Give a detailed account of the hindgut digestion in pigs, including the metabolic role of the fermentation products. 20

SECTION—B

5. Write short notes on the following : 8×5=40
- (a) Early weaning in swine
  - (b) Practical feeding of goats
  - (c) Non-random mating in farm animals
  - (d) Mechanism of sex determination
  - (e) Methods of out-breeding
6. (a) Describe the feeding management of ruminants during drought period. 10
- (b) How does the livestock rearing influence the economy of rural people? 10
- (c) Describe the modern feed additives for poultry. 20
7. (a) Explain the types of records to be maintained at a dairy farm. 10
- (b) Discuss phenotypic variance and its partitioning. Describe heritability, its uses and estimation. 15
- (c) Discuss different breeding strategies for genetic improvement of cattle and buffalo. 15
8. (a) Describe how selection and migration affect gene frequency of a population. What are the economic benefits of molecular genetic technologies in the animal production? 15+5=20
- (b) Describe the care of the cow and calf during and after parturition. 10
- (c) A shepherd having a flock of 300 heads of sheep encounters the problem of inbreeding. What is the best way to overcome the problem? 10

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