

D-GT-M-WTA

**ANIMAL HUSBANDRY AND  
VETERINARY SCIENCE**

**Paper—I**

Time Allowed : Three Hours

Maximum Marks : 200

**INSTRUCTIONS**

Candidates should attempt Question Nos. 1 and 5 which are compulsory, and any THREE of the remaining questions, selecting at least ONE question from each Section.

All questions carry equal marks.

Marks allotted to parts of a question are indicated against each.

Answers must be written in ENGLISH only.

Neat sketches may be drawn, wherever required.

**Important Note**

All parts/sub-parts of a question being attempted are to be answered contiguously on the answer-book. That is, where a question is being attempted, all its constituent parts/sub-parts must be answered before moving on to the next question.

Pages left blank, if any, in the answer-book(s) must be clearly struck out. Answers that follow pages left blank may not be given credit.

**Section—A**

1. Write short notes on the following. Answers to be brief and to the point :  $8 \times 5 = 40$ 
  - (a) Linkage and crossing-over
  - (b) Total digestible nutrients

- (c) Herd recording
  - (d) Spermatogenesis
  - (e) Feeding and management practices for broiler production
2. (a) Define genetic polymorphism. How can polymorphism be used in livestock improvement? 12
- (b) What are sex-linked, sex-limited and sex-influenced traits? Discuss each with suitable examples. 12
- (c) What is a gene? What are the methods for detecting mutations and mutation rate? Discuss in brief. 10
- (d) How will you evaluate the quality of ejaculated semen in the laboratory for suitability for insemination and storage? 6
3. (a) What do you mean by economic dairy farming? Discuss the various factors affecting the efficiency of a dairy animal. 12
- (b) Describe the various diluents most commonly used for diluting bull semen. 10
- (c) Discuss the feeding of lambs for lean mutton production from birth to finisher stage. 10
- (d) How do you evaluate sires for breeding programmes? 8

4. (a) What do you mean by digestibility? Discuss in brief the factors affecting digestibility. Calculate the digestion coefficients for dry matter and crude protein in a bullock consuming 20 kg green maize with 25% dry matter and 1.2% crude protein on fresh basis and excreting 12 kg faeces with 20% dry matter and 1.0% crude protein on fresh basis. Also calculate the DCP value of maize fodder. 20
- (b) Enlist essential macro and trace (micro) minerals. Write the general functions of essential minerals in the animal body. 10
- (c) Define energy. What are the different forms of energy? Give the schematic representation of partitioning food energy in the animal body. 10

### Section—B

5. Differentiate between each in the following.  
Answers to be brief and to the point :  $8 \times 5 = 40$
- (a) Megaloblastic anaemia and Pernicious anaemia
- (b) Aneuploidy and Polyploidy
- (c) Basal feeds and Protein supplements
- (d) Leguminous fodder and Non-leguminous fodder
- (e) Inbreeding depression and Hybrid vigour

6. (a) Distinguish between positive assortative mating and negative assortative mating with an illustrative example each. 10
- (b) Prepare a feeding schedule for a lactating cow weighing 400 kg and yielding 8 litres of milk daily with 4% butter fat from the following feedstuffs :
- (i) Wheat straw (0.0% DCP and 40% TDN)
- (ii) Green berseem (2.0% DCP and 12% TDN)—limited to 10 kg only
- (iii) Concentrate mixture (12% DCP and 65% TDN)
- The daily requirement for maintenance is 250 g DCP and 3.15 kg TDN, whereas for one kg milk production is 45 g DCP and 300 g TDN. 15
- (c) Discuss the various factors affecting the postnatal growth of female calf. 10
- (d) Discuss the inter-relationship between amino acids and vitamins. 5
7. (a) What is progeny testing? What precautions are needed while undertaking progeny testing programme? 10
- (b) Define pedigree selection. Give its merits and demerits. 10
- (c) What are the different environmental factors affecting the behaviour of animals? Explain the mechanism involved in controlling the behaviour of a crossbred lactating cow. 10

- (d) Discuss the different methods for estimation of protein requirements for growth in pigs. 10
8. (a) How is propionic acid absorbed and metabolised in sheep? How many net ATPs are produced from complete metabolism of acetic acid, glycerol, propionic acid and butyric acid in goats? 10
- (b) List the coenzymes/prosthetic groups of respective B vitamins with their enzymic functions in the animal body. 10
- (c) Write in brief the functions of reproductive organs of a bull. 10
- (d) What feeding and managemental practices would you recommend for ruminant animals under natural calamities especially during drought and flood conditions? 10

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