

ANIMAL HUSBANDRY AND VETERINARY SCIENCE
(Paper I)

Time Allowed : Three Hours

Maximum Marks : 300

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

The number of marks carried by a question/part is indicated against it.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

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| 1. | (a) | Define the condition “frothy bloat”. Which kind of grazing and diets are particularly known to cause this condition? What measures can be taken to reduce its occurrence? | 15 |
| | (b) | Discuss the regulation of blood pH during the resting phase and working phase in draught animals. | 15 |
| | (c) | Enumerate the advantages and disadvantages of mixed farming. Discuss its suitability in cases of marginal farm holdings. | 15 |
| | (d) | Discuss the problems and constraints faced in the course of transfer of technology to the farmer’s door. | 15 |
| 2. | (a) | Discuss the part played by neuro-humoral regulation in the maintenance of cardiac function in cows. | 18 |
| | (b) | Enumerate the enzymes used as food additives in animal nutrition. What precise benefits does each of these enzymes offer to the animal? What properties must these enzymes possess if they are to be effective when incorporated into the animal’s diet? | 24 |
| | (c) | What is “chloride shift”? Define its role in carbon dioxide transport in mammalian animals. | 18 |
| 3. | (a) | Define the term “probiotics”. What are the key ways in which they exert their effects? What critical properties must they possess for them to be not harmful to the host animal? | 20 |
| | (b) | “The breeding value of an animal is estimated by progeny testing.” Explain the statement. Enumerate the three principal methods used in the estimation of sires on the basis of progeny testing. | 20 |
| | (c) | Discuss the thermoregulatory mechanisms which help preserve the body temperature of bovine animals under diverse climatic conditions. | 20 |
| 4. | (a) | Discuss the process of digestion and absorption of carbohydrates, proteins and lipids in monogastric and polygastric animals. | 24 |
| | (b) | You wish to set up a commercial poultry farm with the facility of a hatchery. How would you go about setting it? Discuss its critical components. | 24 |
| | (c) | Discuss the measures which can help improve the success rates of artificial insemination. | 12 |

SECTION 'B'

5.	(a)	Discuss the causes of spontaneous and induced mutations. What significance do they carry from the perspective of health of a herd?	12
	(b)	Discuss the modern manipulation techniques which can be used to improve the	
	(b)(i)	Egg production in poultry	8
	(b)(ii)	Wool production in sheep	8
	(b)(iii)	Meat production in pigs	8
	(c)	Discuss artificial induction of lactation in dairy animals and its impact on their health.	12
	(d)	Discuss the relative contributions of genotype and environment on animal phenotype.	12
6.	(a)	“Even as inbreeding within a herd produces homozygosity, animal breeders working with productive herds consider it to be largely unfavourable from commercial perspective.” Explain the full import of the statement.	20
	(b)	Define the term “Growth Promoter”. Discuss the various growth promoters used in rations of ruminants and poultry, citing their mechanisms, favourable effects and possible ill-effects.	20
	(c)	Discuss in brief the gynaecological disorders found in livestock which lead to infertility.	20
7.	(a)	“For monogastric farm animals, oligosaccharides can play a useful role as prebiotics.” Explain the statement. Name five common natural sources of oligosaccharides.	20
	(b)	You are entrusted with the job of developing a herd of high-yielding Murrah buffaloes in the shortest possible time. Using your expertise in animal husbandry, discuss how you would set about fulfilling this task, while ensuring that the herd retains its desirable traits in the subsequent generations.	20
	(c)	Discuss the technological applications being put into practice for improving the digestibility and nutritive value of wheat bran and paddy straw.	20
8.	(a)	Discuss the formulation of a balanced diet in the following groups:	
	(a)(i)	Lactating dairy cattle	8
	(a)(ii)	Pregnant cattle	8
	(a)(iii)	Sheep reared for wool production	8
	(a)(iv)	Heifers	8
	(b)	“In poultry production, culling may sometimes be essential if the profits are to be optimized.” Explain the statement, illustrating your answer with the situations in which this needs to be practised.	14
	(c)	Discuss the physiology of milk formation and milk let-down in dairy animals. Does the diet of the animal affect the quality and composition of milk? Explain.	14