FACULTY	HEALTH SCIENCES & VETERINARY MEDICINE		
DEPARTMENT	PRECLINICAL STUDIES		
SUBJECT	VETERINARY GENETICS		
SUBJECT CODE	V3621EG		
DATE	JUNE 2024		
DURATION	2 HOURS	Marks	100

SECOND OPPORTUNITY EXAMINATION

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This question paper consists of 3 pages Including this front page.

Instructions

This question paper consists of five (5) questions.
Attempt all of them. Calculators may be used.

UNIVERSITY OF NAMIBIA EXAMINATIONS

QUESTION 1 **[20]**

Write notes on the following:

a) Additive gene action (5)

b) Deletion mutation (5)

c) Pleiotropy (5)

d) Genotype (5)

QUESTION 2 **[20]**

a) Give two (2) examples of diseases in each case, in livestock that are the result of single gene disorders due to nonsense and missense mutations. (6)

b) Explain the role of a defective uridine monophosphate (UMP) synthase (DUMPS) enzyme in causing abortions in cattle. (4)

c) Of what importance is gene duplication? (6)

d) There are approximately 22,000 genes in the bovine genome. Explain why, however, the number of genetic defects in the bovine genome will likely be in excess of the number of genes. (4)

QUESTION 3 **[20]**

a) Distinguish between humoral and cellular immunity. (6)

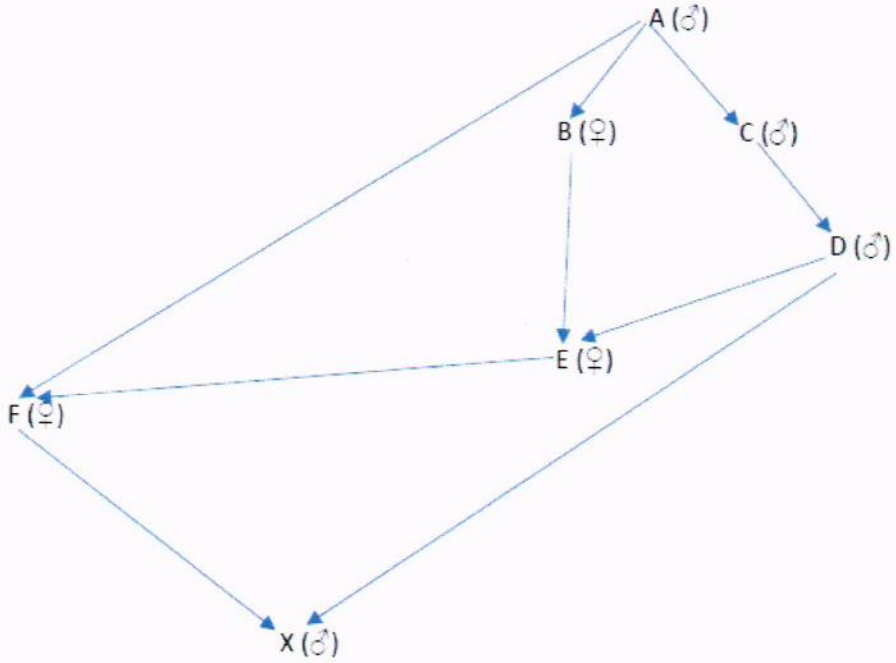
b) With the help of a diagram, describe the clonal selection theory. (8)

c) Explain the meaning of peri-parturient rise (PPR) in fecal egg count in sheep and its likely causes. (6)

QUESTION 4 **[20]**

(a) Explain the genotypic and phenotypic effects of inbreeding. (10)

(b) For the pedigree below:



(i) Calculate the inbreeding coefficient of X. (8)

(ii) Interpret the meaning of the computed inbreeding coefficient in (i). (2)

QUESTION 5 **[20]**

Distinguish between the following terminologies:

a) Aneuploidy/euploidy (5)

b) Monosomy/trisomy (5)

c) Paracentric inversion/pericentric inversion (5)

d) Point mutation/chromosomal mutation (5)