FACULTY	**Health Sciences and Veterinary Medicine**		
DEPARTMENT	**School of Veterinary Medicine**		
SUBJECT	**Veterinary Structure and Function 3 (Paper 2)**		
SUBJECT CODE	**V3681ES**		
DATE	**JUNE 2026**		
DURATION	**3 hours**	**MARKS**	**150**

Examiner: Dr C. Musara

Internal Moderator: Dr F. Chitate

External Moderator: Professor J.P. Chamunorwa

This question paper consists of 3 pages, including this front page.

Instructions

Read the questions carefully
Answer ALL questions
Write clearly and concisely

Second Opportunity Examination

ESSAYS (50 Marks)

1. Describe the roles of various centres in the brain in thermoregulation, highlighting any clinical relevance. (30)
2. Draw a Table indicating calendar of events occurring during the oestrous cycle in the cow. (20)

SHORT ANSWERS (70 Marks)

1. Name four second messengers used by catecholamines and protein hormones in cell signalling. (4)
2. Where are receptors for steroid hormones located? (1)
3. Describe the functions of thyroid hormones (5)
4. List three signs of impending parturition in the cow. (3)
5. The Table below shows immunoglobulin concentrations obtained from a cow's milk, colostrum and serum. Name biological liquids labelled A, B, and C. (3)

Immunoglobulin	A	B	C
IgG1	11	46.7	0.59
IgG2	7.9	2.9	0.2
IgA	0.5	3.9	0.14
IgM	2.6	4.2	0.05

6. Name the principal proteins present in cow's milk and indicate which ones can cause milk allergy in humans. (5)
7. List the constituents of the lipid fraction of cow's milk. (5)
8. Copy and complete the table below on the total composition of cow's milk. (5)

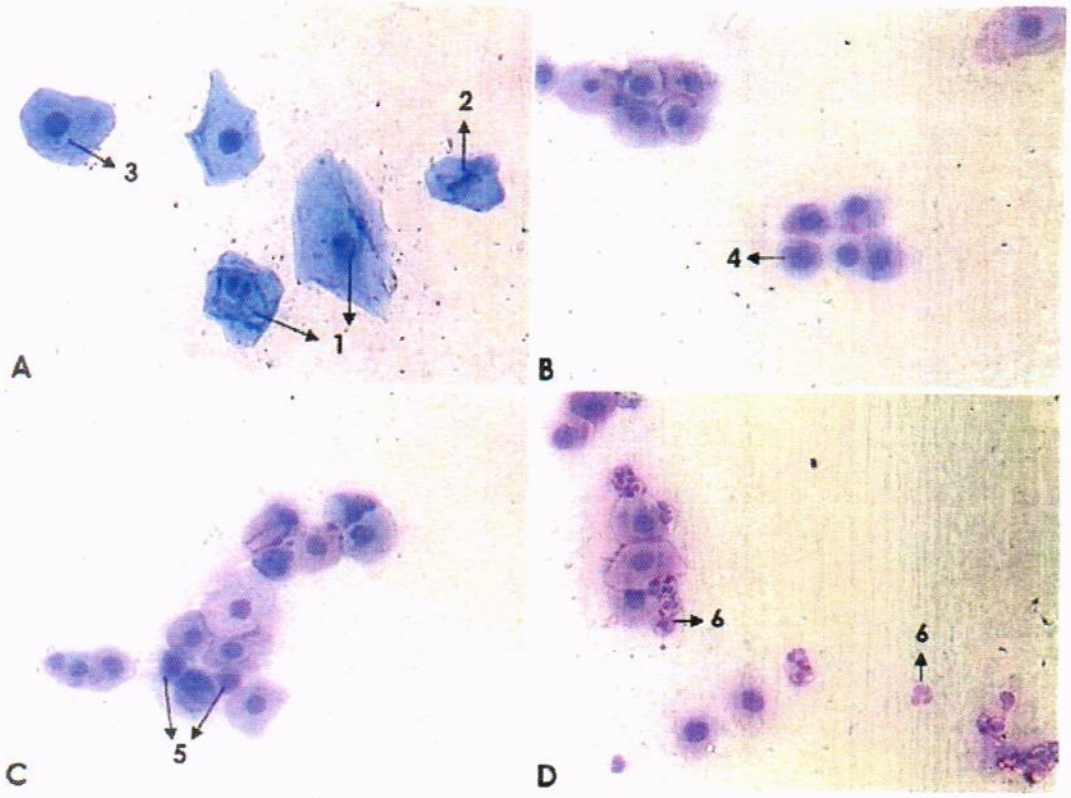
Component	**Quantity (Range %)**	**Quantity (Average %)**
	3.4-5.5	3.7
	4.6-5.1	4.8
	3.1-3.9	3.3
	0.7-0.8	0.7
	85.3-87.8	87.3

9. Give five components of milk that are important for udder health. (4)
10. Name disorders associated with lactation in domestic animals. (5)
11. Briefly describe phototransduction in rods. (7)
12. Briefly describe phototransduction in cones. (8)
13. Explain how information from the senses of equilibrium is transmitted, interpreted and utilized. (5)
14. Name the types of lingual papillae that bear taste buds in ruminants. (2)

15. Briefly describe the applications of the sense of smell of dogs in forensic science. (5)
16. Briefly explain the significance of the Eustachian tube in hearing. (3)

PRACTICAL (30 Marks)

1. a) Identify the cell types numbered 1-6 in the photomicrograph from a vaginal smear below. (6)



b) Deduce the most probable phase of oestrous in panels A-D. (4)

2 a) List all the hormones involved in glucose homeostasis. (4)
b) Give four methods for assessment of glucose homeostasis. (4)
c) Name the endocrine disorders which can disturb glucose homeostasis, indicating their causes. (6)
d) List five complications of chronic hyperglycaemia in animals. (5)
e) Which species are more prone to disorders of glucose homeostasis in veterinary practice. (1)

END OF PAPER