**Unit 303: Understand Animal Anatomy and Physiology**

This unit helps you understand how animal body systems work, how animals reproduce, how hormones and nerves control the body, and how animals are adapted to survive in their environment.
You will complete **4 tasks** in this unit.

**TASK A**
**Know the Structure and Functions of Biological Systems in Animals**

**What you need to do**
You will complete a written question paper about animal body systems and organs.
This task checks your knowledge of:

- body systems
- organ functions
- digestion
- respiration
- the lymphatic system
- the excretory system

**Questions you must answer**

**Question 1**
State six body systems in animals.
Examples could include:

- digestive
- respiratory
- circulatory
- nervous
- skeletal
- reproductive

**Question 2**
List the components of the excretory system.
Include:

- kidneys
- ureters
- bladder
- urethra

**Question 3**
List three functions of the lymphatic system.
For example:

- fighting infection
- transporting fluids
- absorbing fats

**Question 4**
Describe the functions of the liver.
Include functions such as:

- detoxification
- bile production
- nutrient storage
- metabolism

**Question 5a**
Describe the structure of:
- the monogastric digestive system
- the ruminant digestive system

You should explain:
- organs involved
- how food moves through the system
- differences between the two systems

**Question 5b**
Describe three functions of the rumen.
For example:
- fermentation
- breaking down fibre
- supporting microorganisms

**Question 6**
Describe the features of the lungs that allow gas exchange to occur.
Include:
- alveoli
- thin walls
- blood supply
- large surface area

**Grade boundaries**

**Pass**
18 to 20 marks

**Merit**
21 to 25 marks

**Distinction**
26 to 30 marks

To achieve higher grades:
- use scientific terminology
- explain answers fully
- include accurate detail

**TASK B**
**Know Animal Reproductive Processes**
**What you need to do**
You will create an information poster or display about animal reproductive systems.
Your work should focus mainly on mammals.

**Your poster must include:**
**1. Male Reproductive System**
You must:
- identify the structures
- label diagrams
- explain the function of each structure

Examples:
- testes
- penis
- epididymis
- sperm ducts

**2. Female Reproductive System**
You must:
- identify the structures
- label diagrams
- explain functions

Examples:
- ovaries
- uterus
- cervix
- vagina

**3. Hormonal Control of Reproduction**
You must explain hormones involved in the oestrous cycle such as:
- follicle stimulating hormone (FSH)
- luteinising hormone (LH)
- oestrogen
- progesterone
- testosterone

Explain what each hormone does.

**4. Stages of Reproduction**
Include:
- oestrous cycle
- mating
- fertilisation
- pregnancy
- birth

**How to achieve higher grades**
**Pass**
- Correctly label structures
- Briefly explain functions

**Merit**
- Explain functions clearly and accurately
- Link hormones to stages of reproduction

**Distinction**
- Give detailed explanations
- Show excellent understanding of hormones and reproductive processes
- Present work to a very high standard

**TASK C**
**Understand the Biological Control Mechanisms in Animals**
**What you need to do**
You will create a set of revision notes about:
- the endocrine system
- the nervous system

These notes should help someone revise for an exam.
You may use:
- diagrams
- flow charts
- colour coding
- tables
- mind maps

**Your revision notes must include:**
**1. Hormones and Nerves**
Explain:
- what hormones are
- what nerves are
- differences between them

**2. Endocrine Glands**
Include major glands such as:
- pituitary gland
- thyroid gland
- adrenal gland
- pancreas

Explain:
- where they are
- what hormones they produce
- their functions

**3. Hormonal Control Mechanisms**
Describe:
- feedback systems
- hormone release
- regulation of body functions

**4. Nervous System Structures**
Include:
- brain
- spinal cord
- neurons
- sensory nerves
- motor nerves

**5. Reflex Actions and Involuntary Reactions**
Explain:
- reflex arcs
- automatic responses
- examples of reflexes

**How to achieve higher grades**
**Pass**
- Clear revision notes
- Accurate information
- Some references used

**Merit**
- Detailed explanations
- Good organisation and presentation
- Information from several sources

**Distinction**
- Excellent detail and understanding
- Thorough research
- Wide range of references
- Professional presentation

**TASK D**

**Understand How an Animal's Body Structure and Systems are Adapted to its Environment**

**What you need to do**

You will produce a report about one selected animal species and how it is adapted to survive in its environment.

**Your report must include:**

**1. Environmental Adaptations**

Explain how the animal is adapted to:

- climate
- habitat
- movement
- feeding
- survival

Include:

- limbs and skeleton
- body shape
- insulation
- senses

**2. Evolutionary Adaptations**

Explain:

- why these adaptations developed
- how they help survival

**3. Body Systems**

You must discuss at least TWO body systems.

Examples:

- digestive system
- respiratory system
- circulatory system
- excretory system
- thermoregulation
- reproductive system

Explain how these systems help the animal survive in its environment.

**Examples of suitable animals**

You could choose:

- camel
- polar bear
- horse
- penguin
- snake
- desert reptile
- aquatic mammal

**How to achieve higher grades**

**Pass**

- Basic explanation of adaptations
- At least two systems included

**Merit**

- Clear explanation of how and why adaptations help survival
- Detailed links to the environment

**Distinction**

- Detailed and well-developed report
- Excellent understanding of adaptation and evolution
- Thorough research with a wide range of sources