



**Test Blue print for National Exam Examination to be held in
2015E.C**

Band4 (Agriculture andVeterinary).

Program: - Bachelor of Science in Veterinary Pharmacy

BY:

Miss Hana Tesfaye (Gonder)

Mr. Melaku Getahun (Gonder)

January, 2023

Debre Markos

Ethiopia

Introduction

Quality of education in Ethiopia has been an issue at all levels of the education System. Due to these the Ethiopian government in general Ministry of Education in particular has been developing different strategies one of these strategies is implementing exit exam in higher education.

In this regard, it has been believed that realizing exit examination in the universities will support the process of improving the Ethiopia and launched in 2012 at University of Gondar. In order to achieve the valid and reliable measurement of student learning and program learning outcomes, the development of valid and reliable test is mandatory. Exam should be able to measure student performance in all dimensions of knowledge, skill and attitude. The carefully planned test construction contributes to improve the overall quality of the exam in terms of test content validity, difficulty level, discrimination power and test reliability. Exam preparation is not an easy task; it requires a careful planning and guideline to make the task simple. Exam construction needs the preparation of exam blue print. Exam blueprint is defined as a complete plan or framework that explains how to develop a test. The term refers to a map or specification r a guide line of assessment to ensure that the major aspects of the curriculum and educational domains are covered by the assessment programs over a specified period of time. The major points considered in the process of preparing this exam blue print guideline were the core competencies that have been already identified for the themes of courses, the course contents, course credit hours, and the general specific, objective and learning outcomes with their corresponding levels of achievement by learning domains. Therefore, the aim of veterinary pharmacy exam blue print is providing a plan or framework to the teachers to develop exit exam for veterinary pharmacy graduates.

Objective of the blue Print

- ✓ To appropriately assess the instructional objectives of the courses
- ✓ To appropriately reflect key course goals and objectives – relates the material to be learned and the exams to be included in the exit exam
- ✓ To include the appropriate item formats for the skills being assessed
- ✓ To ensure consistent coverage of exam content among the competencies
- ✓ To ensure consistent coverage of exam content from year to year
- ✓ For appropriately distribution of questions among courses according to their credit hours

Significance of the document

The significances of the blue print is to set a map or specification of assessment to ensure that all aspects of the curriculum and educational domains are covered by the assessment programs over a specified period of time and as guide for teachers during the preparation of the exit exam questions. It enables the teachers to be rational during the preparation of the exam.

Expected graduate profiles

The graduates of the veterinary pharmacy program at their graduation will be:

- ✓ Identifying drug related problems and the factors that contribute to drug resistances.
- ✓ Control the manufacturing procedure of veterinary drugs and vaccines.
- ✓ Able to perform veterinary drug manufacturing, compounding, quality assurance of pharmaceuticals and current good manufacturing practices.
- ✓ Identify the methods of extraction, screening, isolation and purification of drugs of natural origin.

- ✓ Understanding of the action, mechanism and fate of drugs in the body and pharmacokinetics, pharmacodynamics, therapeutic use and toxic effects of drugs.
- ✓ Provide proper knowledge on the application of classical and instrumental methods in the analysis of drugs.
- ✓ Document and report pharmaceutical activities
- ✓ Provide drug information service to the community and animal health care providers.
- ✓ Establish and control the selection, procurement, distribution, storage and inventory management of pharmaceutical materials, equipment, drugs and vaccines.
- ✓ Characterize and evaluate formulation, preparation, packaging and storage conditions of different dosage forms.
- ✓ Develop drugs and different types of excipients from plant as well as animal sources.
- ✓ Carry out veterinary drug related research to provide solutions to locally emerging problems.
- ✓ To manage different types of animal diseases by using pharmacological and/or non-pharmacological interventions.
- ✓ Think critically, communicate, cooperate and solve problems from an interdisciplinary perspective.
- ✓ Work as a member of the veterinary health care team

Ministry of Education (Table 1)
Higher Education Sub-sector
Test Blueprint (Table Specification) for BSC In Veterinary pharmacy

Themes and Share of the themes in %	Name and Share of the Courses in %	Credit hour	General objective/Competency	Specific objectives /learning outcomes	Learning outcomes								No. of items
					Cognitive						Affective	Psychomotor	
					Remembering	Understanding	Application	Analysis	Evaluation	Creation/			
Theme 1: Drug and excipient development (34.78%)	Veterinary Pharmacology I and II (11.59%)	4 each	-understand the mechanism action and fate of drugs in the body,	understand the mechanism action and fate of drugs in the body		2.892 %							
			-know how drugs can modify the functioning of the body system.	Identify and exhibit how drugs can modify the functioning of the body system		1.445 %				1.445%			
			-know the pharmacokinetics, pharmacodynamics, therapeutic use and toxic effects of chemotherapeutic agents and drugs acting on specific organs and systems.	Differentiateand control pharmacokinetics, pharmacodynamics, therapeutic use and toxic effects of chemotherapeutic agents				1.445%			1.445 %		
				Identify and list different classes of drugs acting on different organs or systems	1.445%	1.445 %							
	Pharmacognosy	4	-Understand the type, source,	Identifyand exhibit the type, source, habitat, botanical		0.966 %					0.967%		

	(5.8%)		habitat, botanical features and methods employed in the extraction, screening, isolation and purification of drugs of natural origin	features List methods employed in the extraction, screening, isolation and purification of drugs Apply the methods employed in the extraction, screening, isolation and purification of drugs	0.96 6%	0.9 67 %								
	Chemistry of natural product (4.35%)	3	Understand the basic chemical reactions, synthesis and structural elucidation of selected groups of medicinally important natural products	Identify and define basic chemical reactions Exhibit and repeat the synthesis and structural elucidation of selected groups of medicinally important natural products.		1.0 9%					1.09%		0.9 67 %	
	Medicinal chemistry I and II (8.7%)	3 each	To understand the metabolic and regulatory events that controls the functioning of normal cells, tissues and organs at the molecular level	Describe and exhibit every metabolic and regulatory events, enzyme kinetics, membrane structure and function of the body. Explain how different body processes are altered by disease.		1.4 5%					1.45%			
				Design and produce different drugs from either natural or synthetic sources.						1.4 5 %		1.4 5%		
	Ethno veterinary medicine (2.9%)	2	To understand people's knowledge, skills, methods, practices and beliefs about the care of their animals	Identify local knowledge and its associated skills to keep animals with ultimate goal of increasing human well-being. Practice clinical use of herbal medicine and local knowledge. Evaluating designing and accessing herbal medicines		0.9 7%								
							0.9 7 %							
									0 4 8		0.485%			

									5 %				
	Introduction to Veterinary Pharmacy (1.45%)	1	To understand the entry-point to the profession of veterinary pharmacy.	Define Professional ethics, code of ethics and pharmacy practices.	0.7 25 %								
				Identify the role of pharmacist in health care delivery.		0.7 25 %							
Theme 2: Drug chemistry and kinetics (11.6%)	Biopharmaceutics and Clinical Pharmacokinetics (4.35%)	3	Understand the theoretical, practical and mathematical backgrounds that describe drug availability and kinetics in the body.	Assess the mechanisms of drug absorption, distribution, metabolism and excretion and factors affecting the drug disposition.					1 . 4 5 %				
				Differentiate compartmental, non-compartmental and physiological pharmacokinetics models.				1.4 5%					
				Predict the rate and extent of drugs in the body.					1. 4 5 %				
	Veterinary biochemistry (5.8%)	4	Understand clinical biochemistry and its integration with physiology and pathological disease states Know the scope and importance of biochemistry; biochemistry of cellular and sub cellular components	Identify clinical biochemistry and exhibit its integration with physiology and pathological diseases states		0.5 8%					0.58%		
				Describe the scope and importance of biochemistry		1.1 6%							
				List biochemistry of cellular and sub-cellular components	1.1 6%								
				Classify biochemistry of carbohydrates and polysaccharides, lipids, amino acids and peptides structure of proteins and amino acids,		1.1 6%							
				Compare enzymes, co-enzymes and enzyme kinetics					1 . 1 6 %				
	Veterinary	1	Understand basic	Analyse basic calculations				0.7					

	Pharmaceutical Calculations (1.45%)		pharmaceutical calculations for prescription of drugs	important for drug calculation				25 %					
				Apply basic pharmaceutical calculations for prescription of drugs			0.725 %						
Theme 3: Drug, excipient and feed quality analysis (14.5%)	Pharmaceutical analysis I and II (11.6%)	4 each	-understand the purpose of pharmacopoeia and quality control and to provide proper knowledge on the application of classical methods in the analysis of drugs - understand instrumental methods in the analysis of drugs	-Define pharmacopoeia	2.9 %								
				-identify and list different types of classical analytical methods	1.45 %	1.45 %							
				Differentiate and review different types of instrumental analytical methods			1.45 %			1.45 %			
				Apply instrumental methods for analysis of drug quality			2.9 %						
	Veterinary Toxicology 2.8%	2	-Understand the concepts of adverse health effects and problems encountered in the environment and during the development and use of drugs -Know major toxic plants of veterinary importance	Identify major toxic plants of veterinary importance		1.4 %							
				Differentiate the concepts of adverse health effects and examine problems encountered in the environment and during the development and use of drugs			0.7 %			0.7 %			
Theme	Industrial	3	Understand the	Operate and control different pharmaceutical instruments in			0.5					0.545	

4: Drug and vaccine manufacturing and dosage form design (15.94%)	Pharmacy (4.35%)		pertinent unit operations employed in the production of drugs and dosage forms.	the laboratory and in the industrial scale.			4.5%						%	
				Review theoretical and practical aspects of manufacturing of pharmaceuticals		1.09%								
				Employ current good manufacturing practices and fundamentals of quality assurance of pharmaceuticals			1.09%							
				Discuss and express the fundamentals of quality assurance of pharmaceuticals and current good manufacturing practices.		0.545%					0.545%			
	Integrated physical pharmacy and pharmaceuticals I and II (11.6%)	4 each	Understand the physicochemical properties of ingredients, formulation, preparation, packaging and storage conditions of dosage form.	Calculate half-life, shelf life concentration and rate constants of zero, first and second-order reactions/processes.				2.32%						
				Analyse and characterize some physicochemical properties of drugs/excipients				1.16%				1.16%		
				Differentiate properties of liquid, semi-solid and solid dosage forms				2.32%						
				Prepare, package and label liquid semi solid and solid dosage forms.						2.32%				
				Control and Select factors affecting stability of drugs and dosage forms.							1.16%	1.16%		
	Veterinary integrated therapeutics I & II (8.7%)	3 each	-Understand the basic concepts in evidence-based medicine, clinical pharmacokinetics, pharmacodynamics, and pharmacogenetics - understanding on appropriate	Describe the pathophysiology, and techniques used in the diagnosis, treatment & control animal diseases.		2.175%								
				describe the pathophysiology and management of musculoskeletal disorders, diabetes, gastrointestinal conditions and hepatobiliary		1.088%			1.088%					

management (11.6%)			use of medicines in the treatment of these diseases and the role of the pharmacist in maximizing health outcomes from the treatment plan	disorders									
				describe the quality use of medicines issues surrounding the therapeutic agents in the treatment of these diseases		2.175							
				Develop clinical skills in the therapeutic management of these conditions developed clinical skills in the therapeutic management of these conditions						2.175			
	Veterinary drug Supply Management (2.9%)	2	Understand the concept of drug management for better supply of veterinary drugs	Identify the procurement methods of veterinary drugs		0.725							
				List the drug distribution cycle	0.725								
				Apply the good distribution practice			0.725						
				Apply good storage practice of veterinary drugs			0.725%						
Theme 6: veterinary biomedical sciences (11.6%)	Veterinary molecular biology (2.9%)	2	To understand the molecular mechanisms of the cells and the application of molecular biology techniques for disease diagnosis and control as well as for animal breed improvement.	Explain genomics, genetic sequences and genetic techniques.		0.97%							
				Prepare and exhibit DNA in vitro, protein synthesis and regulation.						0.485%			
				Describe molecular biology, genetic materials and genes, replication and regulation of DNA.		0.97%							

	Veterinary physiology I & II (8.7%)	3 each	To understands the function of cells, tissue, organ and organ system of the body.	Define medical terms and concepts related to structural and functional morphology of animals	1.74%									
				Describe anatomical differences between different species of domestic animals.	1.74%									
				Demonstrate the application of the learned material in practical situations			1.74%							
				Distinguish the physiological aspects of normal growth and development from abnormal				1.74%						
				Exhibit the function of different organs in the laboratory.							1.74%			
				Total Number of Items										
Share of domains in %					78.95%						13.205%	7.845%	0	

Key: In the cells/boxes there are numbers that indicate the number of items that correspond to the levels of domains.

NB: Share of courses per theme (C) = $\frac{\text{Credit hour of the course}}{\text{Credit hour of the theme}} \times 100$ Share of themes (T) = $\frac{a}{b} \times 100$

Conclusion

Exams are the tools that provide scores that measure level of student learning and study program learning outcomes. Planning of a test is a first and vital step in the construction of an achievement test. An achievement test demands very systematic and careful planning, as a fact that good planning is a symbol of success.

This document will serve as bases to develop exit examination for veterinary pharmacy program in the six thematic areas identified in the core competencies.