SECOND SEMESTER EXAMS FOR MASTERS OF SCIENCES DEGREE
IN AGRICULTURAL INFORMATION AND COMMUNICATION MANAGEMENT

AICM 703: RESEARCH METHODS IN AICM

Stream: Y1S2 MSc AICM **Time: 3 hours**

Instructions

i. Answer all questions in the answer booklet provided
ii. Marks for each question is given within the parenthesis () and total up to 100
iii. Full marks are awarded only on clear methodological presentation
iv. You may do any necessary rough work **only on the answer booklet**

Question One (25 marks)

a). Explain what researchers gain by stating the research hypothesis before starting data collection activities in the research process **(5 marks)**

b). Outline the essence of literature review analysis in a research process **(5 marks)**

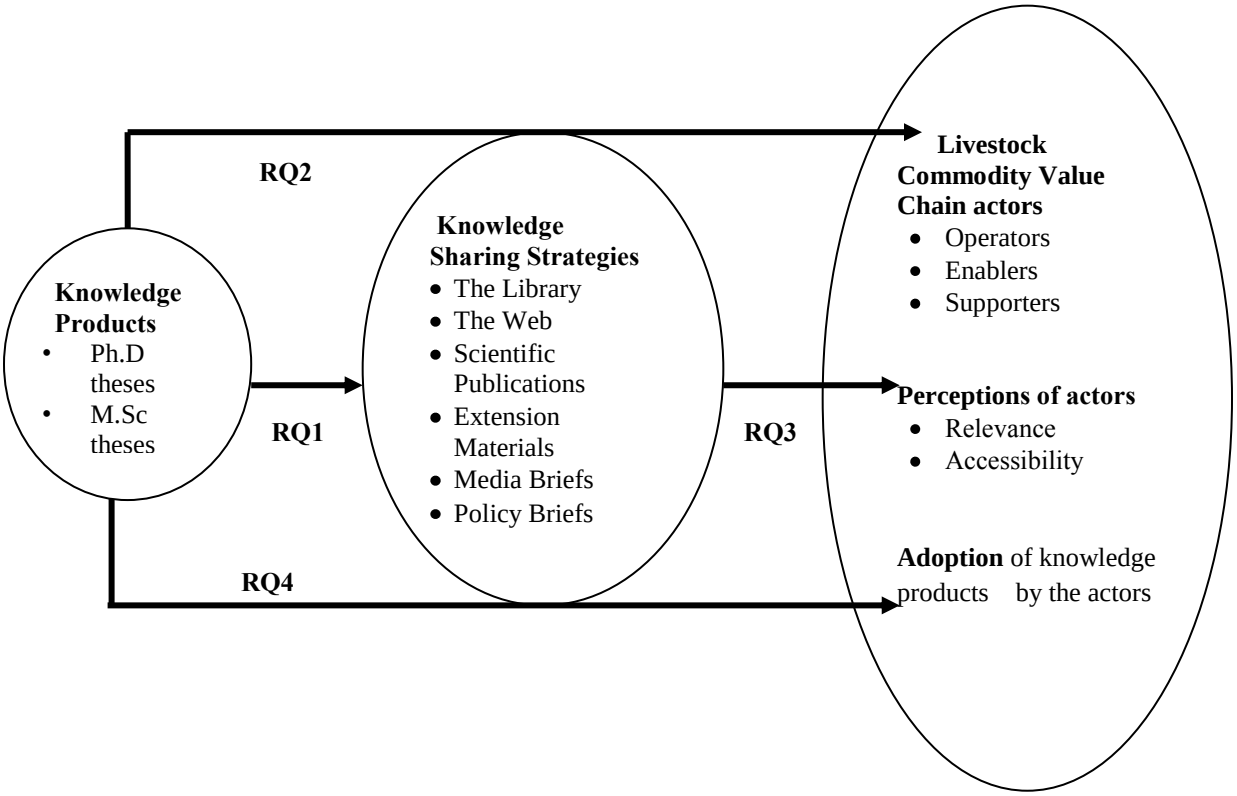
c). Distinguish conceptual model from logical framework as tools used in research **(5 marks)**

d). Explain the terms randomization, replication and stratification as used in data collection process during research implementation. **(10 marks)**

Question Two (25 marks)

A research project of MSc AICM student was designed to assess the effectiveness of agricultural knowledge sharing strategies used at Egerton University from the perspectives of actors in the livestock commodity value chains to answer the research questions: (i) Which strategies are frequently used to share generated knowledge products, (ii) Which actors are mostly targeted with the knowledge products, (iii) What are the actors' preferences of the

knowledge products and sharing strategies used by Egerton University, and (iv) Which knowledge products do the actors perceive to have been generated at Egerton University? The conceptual model the student developed for this research is reproduced. Study the model to answer the questions that follow.



a). The knowledge products sampled in this project were stratified by degree awarded. Explain the difference between stratification and multistage sampling procedure. **(4marks)**

b). Explain why the researcher had to stratify the knowledge products **(3 marks)**

b). Formulate any one SMART specific objective conceptualized in the model and a corresponding hypothesis . **(4 marks)**

c). For the hypothesis you stated in (a), list the independent and dependent variables **(4 marks)**

d). Using the conceptual model described, develop a project logical framework stating the goal, purpose, output and the corresponding activity of the proposed project **(10 marks)**

Question Three (15 marks)

Read the reproduced abstract from MSc thesis to answer to answer the questions following:

A growing concern about East African agriculture is the slow bridging of the gap between knowledge generation and application, contributing to the low agricultural productivity and value. This study tested the hypothesis that participation in Farmer Field School (FFS) extension approach compared to non participation (NFFS) leads to acquisition of more knowledge and skills on dairy management technologies (DMTs) enabling attainment of higher dairy productivity and value. The hypothesis was tested with data from farmers grouped by extension approach then randomly visited once. Knowledge was measured on ability to correctly answer a question on use aspect of DMTs from a set of 4-multiple choice answers. Farmers self-rated their skills in use aspects of DMTs on a 4-point Likert scale (1= least, 4= highly skilled). Differences between FFS and NFFS for the proportion of farmers knowledgeable about DMTs were tested using Chi-square (χ^2) test while differences in skills was tested using non-parametric Mann-Whitney U test. Differences in realised dairy productivity and value levels were tested using t-test. Compared to NFFS, participating FFS farmers were more ($p<0.05$) knowledgeable and skilled on the use of DMTs, achieved higher ($p<0.05$) milk yields and fewer ($p<0.05$) services per conception and their estimate annual gross margins from dairy enterprise was 3.7 times higher, but body condition of their cows were not any better ($p\geq 0.05$).

a). List the dependent and independent variables in this survey study? (**3 marks**)

b). If stratified sampling was applied to obtain 120 farmers from a sample frame of 1200 farmers, show clearly the procedure followed to achieve this **(5 marks)**

c). Identify the types of statistical tests performed in this study **(3 marks)**

d). Interpret clearly the meaning of $p\geq 0.05$ and $p<0.05$ as used in reporting the results of this study. **(4marks)**

Question Four (20 marks)

A section questionnaire used to collect data on farmers' preferences for extension training methods is reproduced below. Study it carefully and then answer the questions following.

A: From the listed provide, indicate any <u>FIVE</u> extension training methods you consider effective for farmers

First [---------] **Second** [---------] **Third** [---------] **Fourth** [---------] **Fifth** [---------]

Codes for training methods

1=Field days
2=Farmer field Schools
3=Agricultural training Centre (ATC)
4=Training workshops
5=One-on-one by extension agents
6=Farmer-to farmer extension
7=On-farm Demonstration
8=Visits by farmer groups to farmers practicing the technology
9=Leaflets
11=Farmer champions
12=Championing through churches
13=Through schools to pupils and students
14=Radio or TV
15= Agricultural shows
16=Others (specify)----------

B: Rank the methods listed in A in their order of effectiveness (1 being the most effective, 5 the least effective)

Rank 1= [____] **Rank 2=** [____] **Rank 3=** [____] **Rank 4=** [____] **Rank 5=** [____]

a). List the variables defining the data to be collected with this questionnaire and for each variable indicate the type of measurement scales appropriate (**5 marks**)

b). Develop a template for entering the data from this questionnaire into an electronic database, clearing showing all the variables and indicate whether a string or numeric. (**10 marks)**

c). Explain the importance of database in research process. **(5marks)**

Question Five (10 marks)

MSc AICM student used a pair wise participatory research approach to identify information delivery channels for improving soil fertility management in rural farming community of Rwanda. The pair wise ranking of seven delivery channels by the community is summarized below:

1	**2**	**3**	**4**	**5**	**6**	**7**
Radio media	Internet	TV	Extension officers	Farmer Field Schools	Cell phone	Farmer Training courses

The outcome of pair wise matrix scoring was:

	1					
2	1	**2**				
3	3	3	**3**			
4	1	4	3	**4**		
5	5	5	5	5	**5**	
6	1	2	6	4	6	**6**
7	1	2	3	4	5	7

a). Summarize the score and ranking of the outcome for each delivery channel **(7 marks**)

b). From the summary in a, identify the most preferred delivery channel by Rwanda rural community and give reasons. **(3 marks**)