



**UNIVERSITY OF AGRICULTURE, ABEOKUTA**  
**COLLEGE OF ENVIRONMENTAL RESOURCES MANAGEMENT**  
**DEPARTMENT OF FORESTRY AND WILDLIFE MANAGEMENT**

**FIRST SEMESTER EXAMINATION 2009/2010 SESSION**

**COURSE CODE:** FWM 401

**COURSE TITLE:** FOREST INVENTORY AND MANAGEMENT PLAN

**DATE:** THURSDAY 8<sup>TH</sup> JULY, 2010

**TIME ALLOWED:** 2½ Hours

**INSTRUCTION:** Answer FOUR Questions only

1. What is forest stratification? Describe the procedures involved if you want to adopt this method in carrying out an inventory exercise in a part of Olokemeji Forest Reserve.
2. Differentiate between probability and non-probability sampling. List and discuss with examples the techniques under non-probability sampling.
3. Differentiate between:
  - (a) Multistage and multiphase sampling
  - (b) Permanent and temporary sample plots
  - (c) Population and sample
  - (d) Sampling intensity and plot size
  - (e) Mean and mode of a sample unit.
- 4.(a) Describe briefly what you understand by sampling intensity.  
(b) Assuming that preliminary measurements of 25 randomly selected plots provided the following data:  
 $n = 25$  sample units;  $df = 25 - 1$ , or 24  
 $x = 110\text{m}^3/\text{ha}$   
 $s = 50\text{m}^3/\text{ha}$   
If the original objective of the sampling was to be within  $\pm 10\text{m}^3/\text{ha}$ , with a confidence probability of 95%, calculate the sampling intensity.

- 5.(a) Advance reasons why you will not advocate a 100% enumeration of COLERM forest.
- (b) An inventory was carried out at COLERM Field with a dimension of 500 x 300m, the field was divided into 20m x 20m plots out of which 20 plots were randomly selected. The merchantable volumes of trees measured on the 20 plots were as follows: 305, 502, 158, 331, 208, 298, 228, 115, 209, 415, 279, 99, 342, 102, 409, 171, 146, 73, 434, 156.
- (i) calculate the mean volume of trees
- (ii) calculate the mean volume/ha
- (iii) calculate the total volume of trees in the entire population.
- 6.(a) Outline a check list of 5 items to be considered in forest inventory planning for Olokemeji Forest Reserve.
- (b) Given the data below about an area to be enumerated:

Vol Class	Strata area ha	Standard deviation m <sup>3</sup>
I	15	20
II	45	70
III	110	35
IV	60	45
V	70	25

Assuming that a total of 150 plots are to be measured in the area, how will you allocate the field plots optimally and proportionally.