

EGERTON UNIVERSITY 1ST SEMESTER EXAMINATIONS

AGRO 760 - SEED SCIENCE AND TECHNOLOGY

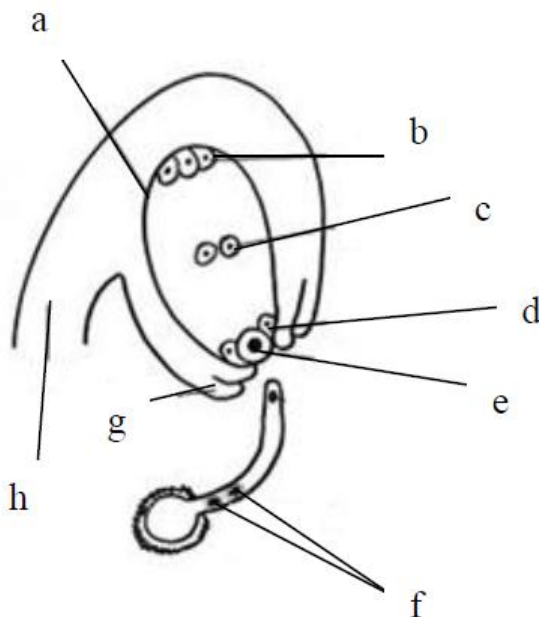
STREAM: MSc. AGRONOMY (Plant Breeding option)

DURATION: 3 hours

DATE:----- 2012.

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND ANY THREE (3) QUESTIONS FROM SECTION B

1. Describe the ISTA (International Seed Testing Association) method used to testing
 - i. seed viability (3 Marks)
 - ii. seed germination (3 Marks)
 - iii. seed vigour (3 Marks)
2. Study the diagram of a mature female gametophyte below and answer questions (i), (ii), (iii), and (iv)
 - i. Name parts a, b, c, d, e, f, g, and h (2 Marks)
 - ii. Give the role of part a, b, c, d, e, f, g, h during seed formation? (4 marks)
 - iii. Give the fate of a, b, c, d, e, f, g, h at the end of seed development (4 Marks)
 - iv. Describe the seed developmental process that this diagram is depicting (3 Marks)



3. Discuss major differences in the morphology and chemistry of monocotyledonous and dicotyledonous seeds (5 marks)
4. Carbohydrates, proteins and lipids are the major components of most seeds.
 - i. Using appropriate chemical structures, classify any one of the three chemical constituents (8 marks)
 - ii. describe how the chemical component classified in (a) above is broken down and utilized during the germination process (5 marks)

SECTION B – ANSWER ANY THREE (3) QUESTIONS IN THIS SECTION

5. Write short notes on the following:
 - i. how seed ecology influences seed dormancy and germination (5 marks)
 - ii. the role of light-phytochrome phenomenon in the germination of seeds (5 marks)
6. Considering the physical features and the chemical composition of cotton seed, discuss the potential industrial, food and feed value of the seed (10 marks)
7. Describe 5 steps in **either** hybrid maize or wheat seed production (10 Marks)
8. In a seed-testing laboratory, a working sample was drawn from a submitted sample of wheat seed. Purity analysis gave the following results: Pure seed = 15.50g; other crops seed = 1.02g; weed seed = 0.19g; inert matter = 0.31g. If the germination percentage and the recommended seedrate were 95% and 90 kg/ha respectively, Calculate: Purity percentage, Pure germinating Seed and Actual seedrate and (10 marks)