2nd SEM.2007/2008

UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER

PROGRAMME: BSC AGRIC. ECON., BSC AG.BMgt (3)

COURSE CODE: LUM 208

TITLE OF PAPER: POST-HARVEST TECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: **CALCULATOR, PSYCHROMETRIC CHART**

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHER QUESTIONS.

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SECTION ONE: COMPULSORY

QUESTION ONE

(a) Define post harvest (2 Marks)

(b) What do you understand by the following terms?
i. Physiological maturity
ii. Crop harvesting (8 Marks)

(c) If a dealer in grains reports that he buys grains at a moisture content of 15%, what would be the scientific moisture content value? (10 Marks)

(d) If the dry and wet bulb temperatures of moist air are 35 ^{0}C and 26 ^{0}C respectively, find the other thermodynamic properties of air from the psychrometric chart provided. (10 Marks)

(e) Describe concisely the theory of grain drying. (10 marks)

SECTION II: ANSWER ANY TWO QUESTIONS

QUESTION TWO

(a) Two 10kg packs of maize are labelled 20% moisture content (wet basis) and 25% moisture content (dry basis) respectively. In order to have maximum value for your money, which of the two packs would you choose? Give your reasons. (10 Marks)

(b) A 500 gram wet sample of maize grain, at 35% moisture content, is accidentally mixed with 800 grams of maize grain, at 25% moisture content. Calculate the resultant moisture content of the grain mixture. (10 Marks)

(c) What are the design requirements for a typical storage house for tropical grain crops? (10 Marks)

QUESTION THREE

(a) You have been invited to give a lecture on safety precautions when applying insecticides. List the points that you would present to the audience. (10 Marks)

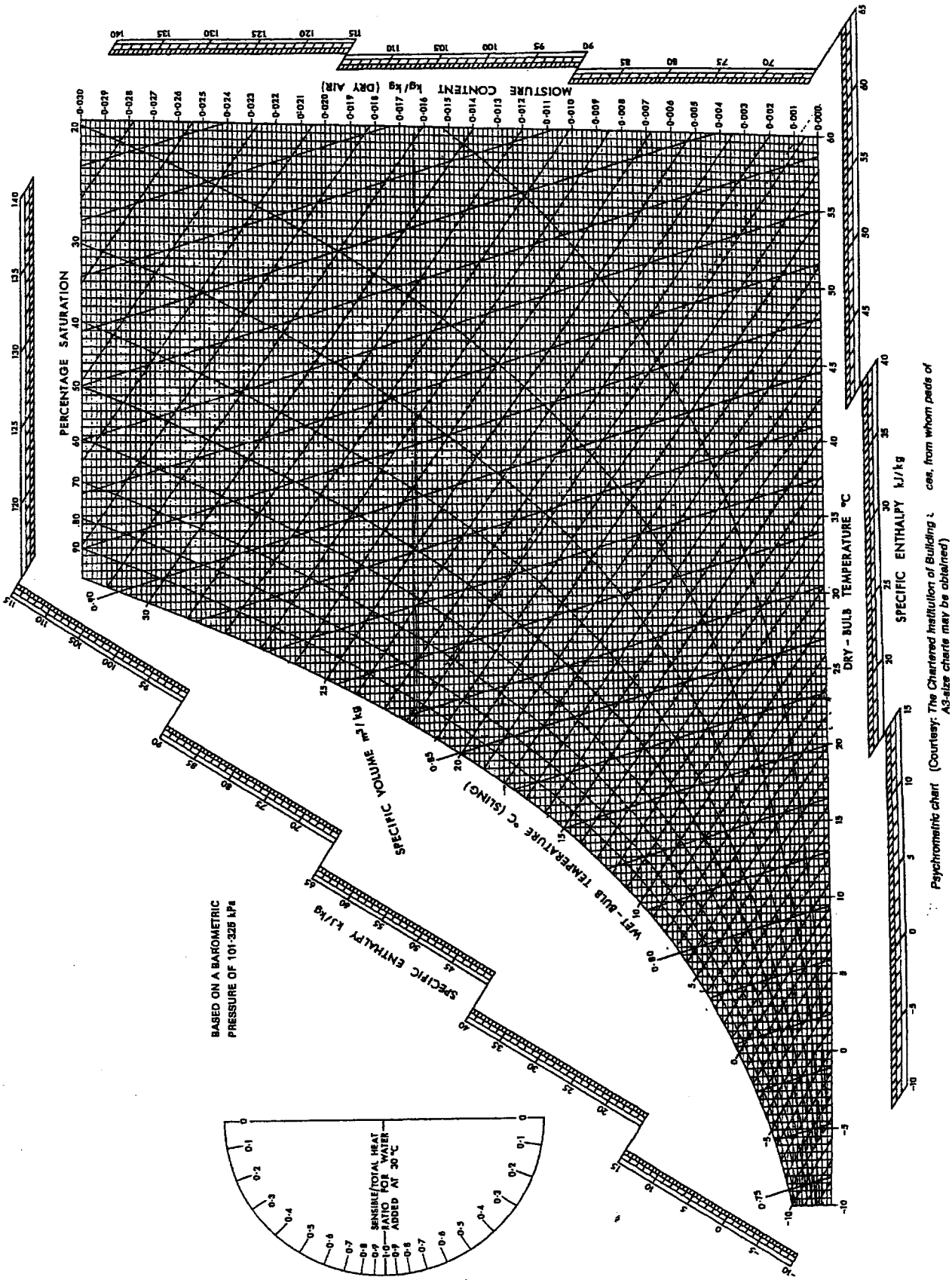
(b) Giving examples of the most important species, describe how micro-organisms cause losses in food grain. (10 Marks)

(c) With the aid of a neat sketch diagram show the physical structure of a maize grain and briefly describe the composition of each of the components. (10 Marks)

QUESTION FOUR

(a) What are the critical parameters observed in the construction of a maize crib? (10 marks)

(b) Describe the factors (biochemical, physical, biological and technical) that cause food produce deterioration during storage. (20 Marks)



Psychrometric chart (Courtesy: The Chartered Institution of Building Services, from whom packs of A3-size charts may be obtained)