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UNIVERSITY EXAMINATIONS

2013/2014 ACADEMIC YEAR (MARKING SCHEME)

THIRD YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE
OF
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

COURSE CODE: BIT 320

COURSE TITLE: KNOWLEDGE BASED SYSTEMS

DATE: 25/4/2014   **TIME: 9:00A.M. – 12 NOON**

INSTRUCTIONS

Answer **QUESTION ONE a**nd attempt **ANY OTHER TWO** questions
Question one carries 30 marks while all other questions carry 20 marks each.

Marks are awarded for clearly explained points

Question 1 (30 marks)

1. Knowledge based systems are likely to become a day in day out application for all organisations as institutions take themselves into a knowledge society.

    (a). Suggest any three types of errors that knowledge based developers would look for in testing a knowledge based system   (3 marks)

    (b). Highlight the advantages Kibabii University College stands to gain if it used interviewing as a tacit knowledge capture tool.   (3 marks)

    (c). What is meant by knowledge codification as used in knowledge based systems?   (2 marks)

    (d). Define an intelligent agent?   (2 marks)

    (e). Explain the two critical tests have to be undertaken in knowledge based systems development by all experts.   (4 marks)

    (f). There exist a number of organizational and cultural factors that inhibit reliable knowledge transfer. Name any three key areas where friction may occur in knowledge transfer within Kenyan public Universities if they undertook a joint project on the same   (3 marks)

    (g). What is meant by each of the following types of knowledge:-
        (1) Declarative knowledge   (1 mark)
        (2) Semantic knowledge   (1 mark)
        (3) Episodic knowledge   (1 mark)

    (h). Let p, q and r be the following 3 propositions:
        p = "The student studies Computer Science"
        q = "The student is smart",
        r = "The student is happy"
    Express the following in symbolic form:
        (1) The student studies Computer Science and is happy.   (1 mark)
        (2) The student does not study Computer Science or he is smart.   (1 mark)
        (3) If the student studies Computer Science but is not smart then the student is not happy.   (2 marks)

    (i). In knowledge based systems developed, a number of problems arise out of language representation. identify any three such problems.   (3 marks)

    (j). State any three factors that would determine the level of training for users in a knowledge based system within a Kenyan college library.   (3 marks)

Question 2 (20 marks)

2. (a) Explain problems and limitations likely to be experienced by KISIWA technical Institute in working with expert system   (10 marks)

(b) The university is in the process of implementing knowledge based expert Academic system. Discuss knowledge based expert system success factors that management must give special attention to grantee its success.   (10 marks)

Question 3 (20 marks)

3. (a) What are the main features of Case-based reasoning? (4 marks)

   (b) If your were contracted to develop a case based system for Kenya Revenue Authority, outline the major step of how you will accomplish the task (6 marks)

   (c) Describe Neural Networks learn within knowledge based systems (10 marks)

Question 4 (20 marks)

4. (a) Why may a given organisation opt to build an expert system? (4 marks)

   (b) Describe the properties of a logic statement for knowledge representation (10 marks)

   (c) With the aid of truth tables justify that the logical expression $P \rightarrow Q$ & $Q \rightarrow P$ is equivalent to $P \leftrightarrow Q$. (6 marks)

Question 5 (20 marks)

5. (a) Briefly explain how rapid prototyping may be used by knowledge developers to develop knowledge based systems. (4 marks)

   (b) Kabati Company is at the stage of planning for adoption of a knowledge based system. Outline the activities the company has to undergo (8 marks)

(c) Briefly explain the production knowledge based systems rule systems operation principles. (8 marks)