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UNIVERSITY REGULAR EXAMINATIONS

2013 /2014 ACADEMIC YEAR

3RD YEAR 2ND SEMESTER EXAMINATIONS

(MAIN EXAMINATION)

FOR THE DEGREE OF

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: CSC 365E

COURSE TITLE: SOFT WARE DEVELOPMENT

DATE: 29TH APRIL,2014 **TIME:** 9:00A.M.-12 NOON

INSTRUCTIONS TO CANDIDATES:

- Answer questions one and any two questions only
- Question one carries 30 marks and the other questions carry 20 marks each.

QUESTION ONE

(a) Explain THREE triggers for a software development project (6 marks)

(b) Amanda works for international office equipment (IOE) which manufactures and supplies various items of high technology office equipment. An expanding area of their work is the maintenance of IT equipment. They have now started to undertake maintenance of equipment for which they were not original suppliers. They use a computer based batch processing for invoicing on a job-by-job basis. An organization might have to call IOE out several times to deal with different bits of equipment and there is need to be able to be able to group accounts for which monthly statements will be produced. Amanda has been given her first project management role, the task of implementing this extension to the invoicing system.

i. Which of the three system options i.e bespoke, off-the-shelf or COTs might Amanda consider with regard to the IOE maintenance group account system? Explain your reasoning (4 marks)

ii. What important stakeholders outside IOE organization might be considered in the case of the IOE Maintenance Group Account system (2 marks)

(c) Outline the EIGHT main stages of software development to be applied where an off-the-shelf package is to be used. (4 marks)

(d) (i) Identify the THREE key players in a software development project and explain their role in the project. (6 marks)

(ii) With aid of a diagram explain the relationship of the THREE players with regard to development of a new system.

(e) Giving a reason for your answer, categorize an operating system as an information system or an embedded system. (2 marks)

QUESTION TWO

(a) What is a software development process? (2 marks)
(b) Outline SEVEN main stages of the traditional software development SDLC in their proper order. (7 marks)
(c) With the aid of a diagram explain the systems life cycle clearly showing the two key events between the stages. (6 marks)
(d) Rapid application development has become a popular route for accelerating system development.

(i) What is rapid application development? (1 marks)
(ii) Outline FOUR basic ideas of RAD. (4 marks)

QUESTION THREE

(a) Many organizations contract out IT development to outside specialist developers.
(i) Explain why organizations might consider contracting out IT development a better option than building in-house. (2 marks)
(ii) Explain the following types of contracts. (9 marks)
1. Fixed price contract.
2. Time and material contract
3. Fixed price per unit delivered contract.

(b) (i) What is the capability maturity model? (2 marks)
(ii)Describe the five levels of the capability maturity model. (7 marks)

QUESTION FOUR

(a) Today entire suits of automated tools have been developed to assist system developers. Outline FIVE benefits of using such tools in system development. (5 marks)
(b) Identify and describe FOUR attributes exhibited by well engineered software. (8 marks)
(c) Explain how the structured analysis and design technique differ from object oriented analysis and design technique in terms of data and process modeling. (3 marks)
(d) Consider a system that maintains a database of students who are present and those who are absent from a class. Assume that students are identified by a unique registration number REGNO and the set {REGNO} is the set of all students registered in the class while {absent} and {present} represent the sets of all students who are absent or present respectively.
(i) With regard to the above system explain the meaning of the following expression (4 marks)
i. **{absent}** U {**present} = {REGNO}**
ii. **{absent}** ∩ {present} = 0/

QUESTION FIVE

(a) Conceptually, requirements analysis includes THREE types of activities. List and explain these activities. (6 marks)
(b) The use of ad hoc method to develop software before 1960's resulted to production of low quality software that was unreliable and too expensive to maintain.

(i) Explain the ad hoc method of software development. (2 marks)

(ii) Define quality in the context of software development. (2 marks)

(iii) Explain the reason why software produced using ad hoc method is too expensive to maintain. (3 marks)

(c) Most software development organizations agree to the fact that there should be a set of activities called requirement engineering and their success is vital to the success of the entire project but the present state of practice is no better. Outline SEVEN reasons to explain why this is so. (7 marks)