UGANDA MARTYRS UNIVERSITY

NKOZI

UNIVERSITY EXAMINATION

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION SYSTEMS

END OF SEMESTER FINAL EXAMINATION

SEMESTER II, 2015/16

THIRDYEAR EXAMINATION FOR BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

Soft ware Engineering

CSC 3202

DATE: 3rd May 2016

TIME: 2: 00- 5:00 PM

DURATION: 3HRS

Instructions:

1. *Carefully read through ALL the questions before attempting*
2. *ANSWER ALL QUESTIONS IN SECTION A*
3. *ANSWER ANY THREE (3) QUESTIONS IN SECTION B*
4. *No names should be written anywhere on the examination book.*
5. *Ensure that your Reg Number is indicated on all pages of the examination answer booklet.*
6. *Ensure your work is clear and readable. Untidy work shall be penalized*
7. *Any type of examination Malpractice will lead to automatic disqualification*
8. *Do not write anything on the questions paper.*

Question 1
A disadvantage if organisation develops rather than buys a software system is it _____.
A. Does not meet all requirements   B. Quicker to deploy
C. Takes longer to deploy   D. None of these

Question 2
The detailed study to establish if software will work in the intended environment is known as
A. technical feasibility study   B. feasibility study
C. operational feasibility study   D. system analysis

Question 3
What is not the goal of the requirements analysis and specifications phase of the SDLC
A. Establishing customer requirements
B. Analyzing activity schedules and cost of development
C. Establishing the scope of the software
D. Identifying strengths and weaknesses in the old system

Question 4
The fundamental objective of software testing is
A. Find errors   B. Remove all errors   C. Verify requirements   D. None of these

Question 5
When managing software development project if the _____ activity is delayed beyond its float the project duration will increase
A. Shortest   B. critical   C. non-critical   D. longest

Question 6
Which of the following SDLC phase is the most important ?
A. Requirements collection and analysis   B. Design   C. Testing   D. Coding

Question 7
Which phase does a project manager determine the composition of a software project team
A. Feasibility study   B. Analysis   C. Design   D. None of these

Question 8
Software Maintenance does not include
A. Error corrections   B. Enhancements of functionalities
C. Deletion of obsolete functionalities   D. Data conversion and loading

Question 9
_____ is a simplified description of a software development procedure
A. Conceptualization   B. Designing   C. Testing   D. Software process

Question 10
Who is responsible for overseeing functionality testing?
A. System Developer   B. System Tester   C. System Analyst   D. Project Manager

Question 11

The detailed investigation of internal logic and structure of a software code is
A. grey box testing   B. Black box testing   C. white box testing   D. none of these

Question 12
For well understood requirements that are not likely to change it is best to use the _____ model
A. waterfall   B. Prototyping   C. Evolutionary   D. Spiral

Question 13
In Software Development Life Cycle (SDLC) which of these activities comes later than the others
A. System design   B. System analysis   C. Implementation   D. Testing

Question 14
A questionnaire that captures consistent and reproducible responses is _____
A. Valid   B. Unbiased   C. Reliable   D. Concise

Question 15
Reuse-oriented software engineering is when
A. specification, development and validation are interleaved
B. the system is assembled from existing components
C. all of the process activities are planned in advance
D. the same software is used in different organisations

Question 16
In agile software development
A. all planning is first completed   B. planning is incremental
C. planning is omitted   D. none of these

Question 17
"What is your opinion about the new system?" This question is capturing data about _____
A. Attitude   B. Beliefs   C. Behaviour   D. Attributes

Question 18
A software development approach based on the development and delivery of very small increments of functionality is known as
A. prototyping   B. extreme programming   C. spiral model   D. V-model

Question 19
The main purpose of integration testing is to find
A. Design errors   B. Analysis errors   C. Procedural errors   D. interface errors

Question 20
What type of questions are more informative but less easy to codify, enter and analyse
A. Closed   B. Beliefs   C. Attitudes   D. Open

Question 21
During software requirements collection twelve employees are randomly selected from each of the six departments in an organization. What sampling method was used?
A. Clustered   B. Systematic Random C. Stratified Random   D. None of these

Question 22

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_____tests determine how well the system recovers from input errors and other failure situations

A. robustness   B. functionality   C. stress   D. regression

Question 23
The actual realisation of software codes is done during the _____ phase in the SDLC.
A. maintenance and Evaluation   B. design   C. analysis   D. implementation

Question 24
_____ spend most of their time in the beginning stages of software development talking with end-users, gathering information and proposing solutions.
A. Systems analysts   B. Project managers   C. Network engineers   D. Database administrators

Question 25
Which phase is carried out throughout the SDLC?
A. Programming   B. System Analysis   C. Documentation   D. Prototyping

Question 26
To collect requirements using an interview is suitable if
A. Sample size is large   B. Closed questions are to be used
C. Respondents are scattered   D. None of these

Question 27
_____ of software may occur when software can no longer cope with existing technologies
A. Conceptualization   B. designing   C. retirement   D. testing

Question 28
An important aspect of coding is
A. conciseness   B. readability   C. productivity   D. uniqueness

Question 29
In software development which activity is not out continuously
A. Documentation   B. Quality check   C. Design   D. management

Question 30
Which the longest phase of a software life cycle
A. Coding   B. Analysis   C. Design   D. operational and maintenance

Question 31
A software development company is evaluating the best Database Management System to use in a software development project. The results obtained from demonstration sessions of the short listed suppliers of candidate DBMSs is given in the table below.

Group	Group Weight	Feature	Feature Weight	DBMS 1	DBMS 2
G1	0.4	F1	0.1	8	9
		F2	e	10	6
		F3	2e	9	5
G2	x	F5	3f	8	8
		F6	2f	6	8

a) Calculate the values of e, f, x (You must show your computations)   (3 Marks)
b) Identify and give the most suitable and least suitable software.   (7 Marks)

SECTION B

(60 MARKS - ATTEMPT ANY THREE QUESTIONS)

QUESTION 1 - (20 MARKS)

a) What is Software engineering (2 Marks)

b) Mention the three major objectives of Software engineering. (3 Marks)

c) "It is a general misconception that Software Quality Control (SQC) is synonymous With software quality assurance (SQA)". Give two differences between the two (2 Marks)

d) Your Company has been commissioned to design, supply and install a school records management software system. The activities required to execute this project are given in the table below.

Activity	Activity Duration (Days)	Predecessors	Resource	Resource costs - Per day
Q	4	-	PM,SA	Project Manager(PM) - $500
R	8	-	SA,TW	
S	6	Q , R	DA	System Analyst(SA) - $350
T	14	S	PM, SA	Data Analyst(DA) - $200
K	12	Q	PR	
M	2	K	DBS	Programmer (PR) - $400
W	6	M , T	PR, DBS	
X	2	W	DA	Database Specialist(DBS)- $220
Y	6	W	PR,TW	
Z	2	X , Y	PM, TW	Technical Writer (TW)- $200

i) As an expert in software project management, develop a Gantt chart for the project. (6 Marks)

ii) What is the overall project's estimated duration (1 Marks)

iii) Prepare a payment schedule if payments are made every 20 days. (6 Marks)

QUESTION 2 - (20 MARKS)

Below is a Gantt chart for a software development project. To relate the chart with the resource table - Note that for activity H the resource required is R2, for Activity G the resource required is R3, for activity D the resources required are R1 and R2 etc.

Activity										Resource	Cost
H										R2	R1 - $140 per week
G										R3	
F	After G and B - Duration 3 week									R3	R2 - $100 per week
E										3R2	
D										R1, R2	

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										R1	R3 – Free at no cost
C	After F - Duration 6 weeks									R2	
B										R3	
A											
	1	2	3	4	5	6	7				

Weeks

a) Use the information on the chart to draw a completely labelled Network diagram (8 marks)
b) What is the duration of the project (1 mark)
c) What is the total cost of the project (5 marks)
d) In a table form give the EST, EFT, LST, EFT, Float of activities B and E (4 marks)

Activity	EST	EFT	LST	LFT	Float
B					
E					

e) What are the characteristics of a dummy activity (2 marks)

QUESTION 3 - (20 MARKS)
a) Define the following software engineering concepts
  i) Software process (2 Marks)
  ii) Requirements collection (2 Marks)
b) Distinguish between the following
  i) Plan-driven and Agile processes (2 Marks)
  ii) Closed interviews and Open interviews. (2 Marks)
c) What is the role of a System Analyst in a software development project (3 Marks)
  Mention the phases in a software development cycle. (6 Marks)
d) Give a scenario of any optional phase in the execution of a software project. (3 Marks)

QUESTION 4 - (20 MARKS)
a) In respect to Requirements discovery, what is a Viewpoint. (2 Marks)
b) What is the purpose of a feasibility study (2 Marks)
c) Define the following software tests
  i) Basic test (2 Marks)
  ii) Functionality test (2 Marks)
  iii) Robustness test (2 Marks)
  iv) Inter-operability test (2 Marks)
  v) Performance test (2 Marks)
  vi) Stress test (2 marks)
  vii) Reliability test (2 marks)
  viii) White box test (2 marks)

QUESTION – 5 (20 MARKS)
a) Mention the four components of a software system (2 Marks)
b) What is the difference between Generic Software products and Customized Software products (2 Marks)
c) For most critical software systems the most important system property is the Dependability of the system.
  i) What is software dependability (2 Marks)
  ii) List the four principal dimensions of dependability (4 Marks)
d) Briefly mention any three guidelines you would follow when

Designing a good questionnaires (6 Marks)

e) Briefly explain any two drawbacks of Open-ended questions (2 Marks)

f) Mention any two scenarios when oral interviews would be unsuitable as a data
Collection technique (2 marks)

END