ELIZADE UNIVERSITY
ILARA-MOKIN
ONDO STATE

FACULTY: BASIC AND APPLIED SCIENCES
DEPARTMENT: MATHEMATICS AND COMPUTER SCIENCE
1ˢᵗ SEMESTER EXAMINATION
2020/2021 ACADEMIC SESSION

COURSE CODE: CSC 207   **COURSE TITLE:** Software Engineering I

COURSE LEADER: Dr. Kehinde Agbele   **DURATION:** 2 Hours 30 Minutes

HOD's SIGNATURE

INSTRUCTION: Candidates should answer _QUESTION ONE_ and any **FOUR** Questions.

Students are warned that possession of any unauthorized materials in an examination is a serious assessment offence. Students are permitted to use ONLY a scientific calculator.

1.
(a) A Lagos-based software development company has been experiencing significant issues regarding the maintenance of some of its existing systems. You are a senior Software Engineer responsible for the evolution of a new software product. You have to decide how your Software Engineers will be split between the development team and the maintenance team of the new product. Towards this, discuss and compare which factors would influence whether there should be separate teams for development and maintenance, one team covering both activities, and a small overlap between the teams.

(b) Define the following concepts in the context of Software Engineering:

(i) Milestone	(vi) Software Process Model
(ii) Control Flow Graph	(vii) Pseudo Code
(iii) Software Project Management	(viii) Software Project Planning
(iv) Risk Identification	(ix) Risk Decision Tree
(v) Checklist	(x) Software

(c) Differentiate Descriptive Software Process and Prescriptive Software Process

2.

  a. Discuss in details any 4 mentioned software development lifecycle models.
  b. State the rules for correct process models.
  c. Draw a process model for the task of painting the walls in your room. Include the following tasks: choose color, buy paint, clean the walls,, stir the paint, and paint the wall. Hence, draw the PERT diagram for painting your room.

Draw an object model for the factory production problem. Also draw a data flow diagram (DFD) for a factory production.

3.

a. What is Programme Productivity?
b. What is the difference between a process approach and a project approach?
c. A Programmer recorded this time log.

Date	Start	Stop	Interruptions	Delta	Task
1/2/21	09:00	15:00	30		Code 50 LOC
2/2/21	08:30	16:00	30		Code 60 LOC
3/2/21	09:00	14:00	60		Code 40 LOC
3/2/21	15:30	18:00	30		Code 40 LOC
4/2/21	09:00	12:00			Testing

i Complete the table ii Calculate the programmer's productivity
Iii.Determine how long it will take the programmer to complete a project of 1.6KLOC

4.

a. A friend offers to play one of two betting games with you. Game A is that you toss a coin twice. He pays you $10 if you get two heads. You pay him $2 for each tail you toss. Game B is that you also toss a coin twice, but it costs you $2 to play and he pays you $10 if you get two heads. Which game should you play? Draw a decision tree to justify your answer.

b. Consider two dice. Consider rolling a 5 or 7 as an undesirable event that would make you lose a sum of #1,800. Calculate the risk probability and the risk impact of rolling a 5 or 7. Calculate the risk exposure.
c. Why is risk management important?
d. Consider driving to the airport to catch a plane on an airline that you have not used before. What risks might be unique to this trip to the airport, and which ones might be managed as part of the normal trip to the airport.

5.

  a. List and Discuss the phases of the design process
  b. Enumerate and Discuss the Attributes of a Design
  c. List the basic steps in an inspection
  d. List the basic roles that most inspections use
  e. How does a phased life cycle model assist software management?

6.

a. Explain the process of calculating completion time.

b. State the algorithm for identifying the critical path

c. Draw the PERT diagrams for the given set of tasks and dependencies. Complete the table 2 showing the critical path and the slack times

ID	Start time	Dependencies	Completion time	Critical path	Time to Completion
A	6				
B	8				
C	11	A,B			
D	5	A			
E	8	B			
F	2	C,D			
G	9	D,E			
H	7	F,G			
I	3	E,F			