Bachelor of Engineering Information Technology Exam, 2019

2nd Year, 2nd Semester

Software Engineering

Marks-100   Time- 3 Hours

CO1-20

Answer any 1 Question

1. a) Determine the significance of prototype model as RTSD model.   6
    b) Find out the SDLC sequences in database design.   6
    c) Mention the Lehman's Laws of software evolution.   5
    d) What are the myths of software engineering?   3

2. a) Determine the relation between POMA and SPM.   6
    b) Write a note on software engineering ethics.   4
    c) List out the Royce principles of modern software management.   6
    d) Discuss the relevance of fountain model in OOSD.   4

CO2-20

Answer any 1 Question

3. a) Differentiate between SSAD and OOAD.   3

    b) Explain the features of SRS.   7

    c) Define: state transition diagram.   2

d) Evaluate the PERT-CPM for the given below.

activity	task (days)		
	opt.	most likely	pesmt.
1->2	4	6	7
1->3	1	2	5
1->4	4	5	6
1->5	3	6	8
2->3	5	6	7
2->4	3	4	5
2->5	1	3	4
3->4	1	5	6
3->5	1	3	5
4->5	3	5	7

4. a) Describe the features and functions performed by a system analyst.   8

   b) With a diagram discuss the importance of analysis phase.   5

   c) What are the different types of feasibility?   3

   d) Draw the Gantt Chart for the given table.   4

task	allotted time(day)	dependency
t0	15	-
t1	10	t0
t2	25	t0, t1
t3	250	-
t4	30	t0, t1, t2

Answer any 1 Question

5. a) Develop a model for software design.   6

   b) Mention the principles of software design.   3

   c) Differentiate between cohesion and coupling.   3

   d) Determine the logical validity of design for the given below.   4

      z=0

      while x>0

      z=z+y;

      x=x-1;

      end while;

      print (z);

   e) Find out the H-K information factor for the following table.   4

wf	0.5	1.0	1.2	2.5	3.0	3.5
mod	a	b	c	d	e	f
in	1	2	4	3	0.6	3.5
out	2	1	3.5	2	0.5	3,6

6. a) Determine the linguistic metrics for the given code segment.   6

    read x , y , z ;

    type= "scalene";

    if(x==y or x==z or y==z)

    type="isosceles";

    if(x==y and x==z)

    type="equilateral";

    if(x>=y+z or y>=x+z or z>=x+y)

    type="not a triangle";

    if(x<=0 or y<=0 or z<=0)

    type="invalid inputs";

    print type.

b) Write a short note on Seeheim model.   4

c) Differentiate between FO and OO Design.   2

d) Mention the guidelines for coding.   3

e) What are the scopes of SCM system?   3

f) Sketch out the landscape of software reuse.   2

C04-20

7. a) List out the various principles of software testing.   3

    b) Differentiate between: (any 2) -   2+2=4
        i) white box and black box testing
        ii) testing and debugging
        iii) review and inspection
        iv) model and standard

c) Write a short note on: (any 1) -   4
i) test oracle
ii) PDCA
iii) CASE Tools types

d) Given no. of failures experienced by a program in finite time is 160 and mean failures experienced are 80. Initial failure intensity was 20 failures/CPU hr. Compute the current failure intensity for Musa Basic Model.   3

e) Determine the importance of waterwheel model in OOST.   4

f) What is meant by CMM?   2

C05-20

8. a) A software project has the different phases with corresponding documentation: planning = 1200 LOC, analysis = 1000 LOC, design = 2500 LOC, coding = 4000 LOC, testing = 3550 LOC, maintenance = 800 LOC, assessment = 500 LOC. The various attributes of the s/w are specified: completeness = 0.75, capability = 1.25, reliability = 0.55, efficiency = 75% and reusability = 80%. The avg. development cost is Rs. 30000/- per KLOC/PM/day. The code is written in C language. Apply COCOMO-I for the given project. Determine its equivalent FP measurement. What is the EVI of this project?   12

b) A software project has the following quality attributes: portability, reusability, interoperability, reliability, correctness, usability, integrity and efficiency. That project has the following quality metrics: accuracy, complexity, audibility, traceability, consistence, tolerance.
Develop a quality matrix of the project by mapping between software quality attributes and metrics.   6

c) Name the different stages of QAT.   2