NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA-769008
END-SEMESTER EXAMINATION, 2019
SESSION: 2019 – 2020 (Autumn)
M.Tech. 1st / Dual Degree 9th Semester

Subject code: CS 6413 / CS 614 Subject Name: SPPQM Dept. Code: CS
No. of pages: 2 Full Marks: 100 Duration: 3 *Hours*

Figures at the right hand margin indicate marks.
Answer any FIVE questions including Q. No. 1

Q.No.	Particulars	Marks
1.		2x10=20
(a)	Give two differences between original COCOMO model and COCOMO 2 model.	
(b)	A project depends on a data centre vulnerable to fire. It is estimated that if a fire occurs, a new computer configuration could be established for Rs. 50,000. It is also estimated that where the computer is located there is a 1 in 100 chance of a fire actually happening. Find the risk exposure in this case.	
(c)	What is the important diference between PERT and Monte Carlo simulation?	
(d)	Why resource smoothing is needed? How it can be done?	
(e)	What is the difference between code inspection and code walk through?	
(f)	What is the difference between slip chart and time line chart?	
(g)	What do you maen by a "bespoke system"? Give an example.	
(h)	Give any two reasons for prematurely terminating a project?	
(i)	How is an application program's "version" different from its "release"?	
(j)	Suppose for a certain project budgeted for Rs. 2000, at certain time during the execution of the project, the manager determined EV=Rs. 500 and AC=Rs.400. What is the current estimated cost of the project?	
2.		10+10=20
(a)	At which point in the software development life cycle (SDLC), do the project management activities start? When do these end? Explain the principal project management processes.	
(b)	What do you mean by programme management? With suitable examples, briefly discuss the different forms of programmes. Mention some of the problems associated with programme management.	
3.		10+10=20
(a)	Determine the function point measure of the size of the following Spell-Checker software: *The Spell-Checker software accepts a document file and an optional personal dictionary file, as input. The checker lists all words not contained in either of these files. The user can query the number of words processed and the number of spelling errors found at any stage during processing. Assume all weighting factors to be average and all complexity adjustment values to be average.*	

(b)	Consider an office automation system. There are 4 major modules:
	`Data Entry 0.6 KLOC`
	`Data Update 0.6 KLOC`
	`Query 0.8 KLOC`
	`Reports 1.0 KLOC`
	The various cost driver attributes are of high complexity, high storage, low experience and low programmer capability with all others being nominal. Use the intermediate COCOMO to estimate final effort, average staff size and total development time. Value for high complexity=1.15, value for high storage=1.06, value for low experience=1.13, value for low programmer capability=1.17, nominal value=1.	

P.T.O.

4.

(a) Draw the network diagram, identify the critical path and critical activities, and calculate the expected project duration for the following project using PERT. Find the probability of completing the project in 24 weeks.

Activity	Estimated Duration (week)		
(i,j)	Optimistic (a)	Most Likely (m)	Pessimistic (b)
1-2	4	6	8
1-3	2	3	10
1-4	6	8	16
2-4	1	2	3
3-4	6	7	8
3-5	6	7	14
4-6	3	5	7
4-7	4	11	12
5-7	2	4	6
6-7	2	9	10

(b) Draw a Gantt chart for the above project applying *critical chain principles*.

i. Locate the places, where the buffers will need to be located.
ii. Access the size of the buffers.

12+8=20

5.

(a) Suppose you are the project manager of a large software development project. What are the common types of risks that your project might suffer. Explain the steps that you would follow to effectively manage risks in your project.

(b) Why do we need to prioritize activities? Explain the different ways to prioritize activities.

12+8=20

6.

(a) Suppose you have a budgeted cost of a project at Rs.9,00,000. The project is to be completed in 9 months. After a month, you have completed 10 percent of the project at a total expense of Rs.1,00,000. The planned completion should have been 15 percent. Compute the Cost Performance Index (CPI) and Schedule Performance Index (SPI) and assess the performance of the project.

(b) What do you mean by software configuration and software configuration management? Briefly discuss why proper software configuration management of the work product in a project is essential. Explain how SCCS can be used to efficiently manage the configuration of source code.

(c) What are the benefits of a review process? Briefly explain the activities that are carried out in review process?

5+10+5=20

7.

(a) In the context of contract management, why do we need to produce an evaluation plan? Explain the different activities involved in evaluation of proposals, in response to the invitation to tender.

(b) What do you mean by a quality system system? Briefly discuss the evolution of quality systems.

(c) Suppose an organization mentions in its job advertisement that it has been assessed at level 4 of SEI CMM. What can you infer about the current quality practices followed at the organization? What does this organization have to do to reach SEI CMM level 5?

10+5+5=20