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Roll No:

(To be filled in by the candidate)

PSG COLLEGE OF TECHNOLOGY, COIMBATORE - 641 004

SEMESTER EXAMINATIONS, MAY 2022

MSc - SOFTWARE SYSTEMS Semester: 8

18XW83 SOFTWARE PROJECT MANAGEMENT

Time : 3 Hours Maximum Marks : 100

INSTRUCTIONS: 1. Answer ALL questions. Each question carries 20 Marks. 2. Subdivision (a) carries 3 marks each, subdivision (b) carries 7 marks each and subdivision (c) carries 10 marks each. 3. Course Outcome: Qn.1 CO2. Qn.2 CO1. Qn.3 CO3 Qn.4 CO4 Qn.5 CO5

- a) A Project requires the transfer of paper documents into a computer based document Retrieval system and their subsequent indexing so that they can be accessed via key- words. Optical character readers are to be used for the initial transfer but the text then needs to be clearly checked and corrected by staff. The project is currently scheduled to take twelve months using permanent staff. Identify the stake holders for this project.
 - b) Identify the actions that could prevent each of the following risks from materializing or could reduce the impact if it did occur:
 - Many users are coming with changes in their requirements after system design is over;
 - The government changes the income tax calculation rules.
 - c) Manny's manufacturing company must decide whether to build or buy a software package to keep track of its inventory. Manny's computer experts estimate that it will cost Rupees 3,25,000/- to buy the necessary software. To build the software inhouse, programmers will cost Rs.5000/- each per month. What factors should Manny consider in making his decision? Whether is it better to build? To buy?
- 2. a) At what stage of a system development project would a prototype be useful as a means of reducing the following uncertainty?
 - Students can access details of available placements through intranet. When there is a placement opportunity for which they wish to be considered, they would be able to apply for it electronically. This would cause a copy of their CV (Curriculum Vitae), which would also be held online, to be sent to the potential employer. Details of interviews and placement offers would all be sent by email.
 - In the following cases, identify the type of the application package to be adopted would be most likely to be bespoke, off the shelf or COTS. Justify your answer.
 - (i) "A system is required by government that calculates, records and notifies individual tax payers about income tax charges."
 - (ii) "An expert system for use in a hospital to diagnose the causes of eye complaints"

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c) A software has to be developed which will extract employee records from the employee data base who are eligible for income tax deduction. The Employee Identification number, Name and department details will be taken from the employee database. A report has to be printed showing Id number, Name, department, Gross salary and income tax amount to be deducted. Assume that report is complex and other elements are of average difficulty. An option is required to view the details of income tax for a given employee on the screen.

In addition to above, system requires

- Significant data communication
- Performance is very critical
- Designed code may be moderately reusable
- System is not designed for multiple installations in different organizations

Other complexity adjustment factors are treated as average.

Estimate the effort required for developing this system using Albrecht function points analysis method. Specify the assumptions you have made during this estimation process.

Weighting Factor	1	A.		
Item Simple	e Average	Complex		
External inputs	3 4	5G 6		
External outputs External inquiries	3 4	6.	6.	
External files Internal files	7 E 10	(5)		
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- 3. a) In a "V" process model the review that is held after the system has been implemented is shown as possibly feeding corrections back to the feasibility study which may have been conducted months or years before. How would this work in practice?
 - b) Which Process model will be used to develop the following system? Justify.
 - A system to administer a student loans scheme.
 - (ii) Airline Reservation system, which is intended to replace an existing system.
 - c) The Information Technology manager of a company ABC felt that the productivity in the development of application systems in the company was low in comparison with the industry standards. This was based on a study of some of the large projects executed in the organization. He found that there were no tools used in the project for any of the project activities. He felt that usage of tools will improve the productivity. He approached the Quality manager to come out with a strategy in this direction. As a Quality analyst what will be the tasks you would perform in introducing tools based software project execution in the company.
- a) Is it possible to represent parallel activities in a Network Model? Justify your answer.
 - b) What kinds of power would the following people have?
 - i) An Information Technology expert, hired for inspecting performance measures in a software product.
 - The Managing Director of an organization who has told his employees that they
 must accept a new contract or face the sack.

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c) Consider the four project cash flows given in the table and select the best project according to discounted cash flow (DCF) techniques.

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Year	Project 1	Project 2 3	Project 3:	Project 4	Discount
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Net Profit	50,000	100,000	50,000	75,000	. The
1.0		6.4		7	

- a) What is the difference between float and slack?
 - Consider a software project with five different activities. A1 thru A5. Duration of the five activities (in days) are 15,10, 12, 25 and 10 respectively. A2 and A4 can start when A1 is complete. A3 can start when A2 is complete. A5 can start when both A3 and A4 are complete. Draw the Gantt chart to represent this project schedule.
 - Draw an activity network using CPM (Critical Path Method) convention for the project details given below :

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6	B-SOFTWARE DESIG	GN < 💛 4	4 /650	7.Cg, 62	
	C-INSTALL HARDW		3 6	A	- 6/2
	D-CODE & TEST	20 7	4 050 26	B	160
	E-WRITE USER MAN	NUALS	10		G TECH
CG	F-USER TRAINING	20%	3 .c.X	E 65°	212
_	PSG1L	PSGIL	PSG TEC ST	E PSU PSG TECH PSG TECH PSG TECH	TECH
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