MODEL QUESTION PAPER

GOVERNMENT POLYTECHNIC, NAGPUR.

(An Autonomous Institute of Govt. of Maharashtra)

Term End Examination- 18ODD/ EVEN

Program : Diploma in Computer Engineering

Course Code :IT406E **Course Name : Software Engineering**

Time : 3 Hours **Max. Marks : 70**

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Use of non-programmable calculator is permissible
5. Assume suitable data if necessary
6. Preferably, write the answers in sequential order.

Q1		**Attempt any FIVE**	**(10)**	**CO's**
1R2	a)	What are software crises and myth?		1
3R2	b)	Enlist any two components of SRS with meaning.		1
4R2	c)	What is the difference between Process Specification and Control Specification?		2
5R2	d)	What is Cohesion and Coupling?		1
6R2	e)	State two points of difference between Reengineering and Reverse Engineering.		1
3R2	f)	Write any two important characteristics of SRS.		1
6R2	g)	Enlist elements of software quality assurance. (any 4)		1
Q2		**Attempt any THREE**	**(12)**	
1U4	a)	Describe the RAD model with diagram.		3
2U4	b)	Describe the Decomposition technique of Software Project Management.		2
3U4	c)	Describe Risk Mitigation, Risk Monitoring and Risk Management..		1
1U4	d)	What is Agility development? Describe how The Extreme Programming is commonly used as a agile process model.		2
2R4	e)	What is the role of SCM Repository. Enlist with meaning the database management functions which repository performs or precipitates.		2
Q3		**Attempt any THREE**	**(12)**	
4U4	a)	Create a Behavioral model and identify the events with the use-case.		3
4U4	b)	In Control flow model state how an event or control item is implemented as a Boolean value. Also describe the guidelines used for select potential candidate events.		3
5U4	c)	Describe how the requirements model (analysis model) can be translated into a design model with diagram. How this interface is achieved.		3
3U4	d)	Describe how Eliciting requirement helps the user for collecting the requirement (write steps)		2

4U4	e)	Describe UML class diagram and UML sequence diagram for the Actuator-Sensor pattern as it might be applied for the SafeHome function that controls the positioning (e.g., pan, zoom) of a security camera.		1
Q4		**Attempt any THREE**	**(12)**	
5U4	a)	Distinguish between Architectural design elements and Component level design elements on the basis of SensorManagement (part of the SafeHome security function)		3
6U4	b)	Describe Garvin's eight dimensions of software quality.		4
6U4	**c)**	What is the purpose of six sigma in software engineering. What are the principles essential while implementing Six Sigma for software.		5
5U4	**d)**	Describe the Component-Level Design Guidelines for designing class based components.		4
6U4	**e)**	Describe the guidelines for choosing the right project management method.		4
Q5		**Attempt any TWO**	**(12)**	
2A6	a)	Justify you answer for the statement "Estimation is the process of finding estimate, or approximation, even if input data may be incomplete, uncertain or unstable"		2
3A6	b)	Study a Project schedule shown in table below and answer the questions :		4

Activity	Name	Time (days)	Activity	Name	Time (days)
1-2	A	4	5-6	G	4
1-3	B	1	5-7	H	8
2-4	C	1	6-8	I	1
3-4	D	1	7-8	J	2
3-5	E	6	8-10	K	5
4-9	F	5	9-10	L	7

a) Construct PERT Network
b) Compute T_E and T_L for each activity
c) Find the critical path

4A6	c)	Write a Formal use case for Scenario Based modeling with actor as homeowner in order to "Access camera surveillance via the Internet—display camera views" (ACS-DCV)		3
Q6		**Attempt any TWO**	**(12)**	
4A6	a)	Create a data flow model and draw a data flow diagram that		3

		enables you to develop models of the information domain and function domain.		
5A6	b)	How different design classes, each representing a different layer of the design architecture, can be developed.		4
5A6	c)	Justify the statement, Considering the elements of the SafeHome product,: "Deployment-level design elements indicate how software functionality and subsystems will be allocated within the physical computing environment that will support the software".		4