

**SVKM's NMIMS**  
**MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING**

Programme: B. Tech (COMPUTER)

Year: III

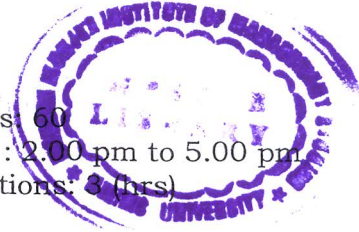
Semester: V

**Academic Year: 2016-2017**

Subject : Software Engineering

Date : 01 December 2016

Marks: 60  
Time : 2.00 pm to 5.00 pm  
Duration: 3 (hrs)



**Final-Examination**

**Instructions:** Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

- 1) Question No. 1 is compulsory.
- 2) Out of remaining 6 questions, attempt any 4 questions.
- 3) **In all 5 questions to be attempted.**
- 4) All questions carry equal marks.
- 5) **Answer to each new question to be started on a fresh page.**
- 6) **Figures in brackets on the right hand side indicate full marks.**
- 7) Assume Suitable data if necessary

- Q1** Elaborate the following concepts [4x3]
- a) Data-centered Architectural style with example.
  - b) Capability Maturity Model (CMM) levels in process models.
  - c) State Diagram for Library Management System.
- Q2**
- a) What is prototyping? How is the prototype model useful in software engineering? Discuss its advantages and disadvantages. [6]
  - b) Differentiate between a Program and Software. Why legacy software need to be evolved? [6]
- Q3**
- a) What is an Agile process? Describe the working of SCRUM. [6]
  - b) Give details of how requirements are mapped into a software architecture when 'Transform Flow' is present. [6]
- Q4**
- a) What are the possible Metrics attributes? Differentiate between size-oriented and Function-oriented metrics. [6]
  - b) Explain the terms Unit testing and Integration testing. Also compare Top-down and bottom-up testing. [6]
- Q5**
- a) Explain the system testing in detail. [6]
  - b) Draw a Data Flow Diagram (DFD) for ATM software up to level 2. [6]
- Q6**
- a) A system has 10 simple external inputs and 3 complex external inputs. There are 5 average external output, 20 complex external output, 8 simple external inquires, 10 average internal logical files, and 7 complex external Interface files .If the total degree of influence for the product (Fi) is 51, determine the number of function points. The organizational average productivity for systems is 5 FP/pm with a burdened labor rate of \$2,000 per month, estimate the effort and cost required to build the software using FP-based estimation technique. [6]

Information Domain Value	Count	Weighting factor				
		simple	average	complex		
External Inputs (EIs)	<input type="text"/>	3	4	6	=	<input type="text"/>
External Outputs (EOs)	<input type="text"/>	4	5	7	=	<input type="text"/>
External Inquiries (EQs)	<input type="text"/>	3	4	6	=	<input type="text"/>
Internal Logical Files (ILFs)	<input type="text"/>	7	10	15	=	<input type="text"/>
External Interface Files (EIFs)	<input type="text"/>	5	7	10	=	<input type="text"/>
Count total	→					<input type="text"/>

b) What are the Golden Rules of 'Interface Design'?

[6]

Q7 Write Short note:

[12]

- a) Software Reengineering
- b) Risk Identification and Risk projection