SE - 321 - 2017 - 01

B.S. (HONS) IN CSE PART-III, SIXTH SEMESTER EXAMINATION, 2017

CSE-321

Examination Code : 616

(Software Engineering)

Time—3 hours

Full marks—80

*[N.B—The figures in the margin indicate full marks. Answer any **four** questions.]*

Marks

1. *(a)* What is Software Engineering? Write the attributes of quality software. 2+4=6

   (b) Define with diagram the Boehm's spiral model of the software process. State the advantages and disadvantages of spiral model. 3+4=7

   (c) Explain the sectors in each loop of Boehm's spiral model. Describe shortly. 4

   (d) What the need of feasibility study in Software Development? 3

2. *(a)* Write down the principles of agile process method. 4

   (b) Describe the rules to create a DFD with example. 6

   (c) What are the differences between functional and non-functional requirement in Software Engineering. 4

   (d) Draw and explain a use-case diagram for an e-commerce system. 6

3. *(a)* How do you transform the software analysis model into a software design model? 6

   (b) Write the guideline for a good software design. 3

   (c) Why partitioned in software architecture is needed? Differentiate between horizontal partitioning and vertical partitioning. 2+3=5

   (d) Write short note on Top-down and Bottom-up design model. 3+3=6

Marks

4. *(a)* Why testing is necessary for Software Development? What are the major components of System Testing? Mention their necessity. 3+3=6

(b) Define code walkthrough and code inspection. 4

(c) Write short notes on :— 6

(i) Unit Testing;

(ii) Integration Testing;

(iii) Acceptance Testing.

(d) Write the pros and cons of top-down integration testing. 4

5. *(a)* Explain the software maintenance and its types. 1+4=5

(b) Draw and describe the steps of Re-engineering. 4

(c) What is software reuse? Write the advantages of software reuse. 1+5=6

(d) What is Software Quality Assurance? Describe the attributes of Software Quality Assurance. 1+4=5

6. Write short notes on any **four** of the followings :— 5×4=20

(a) SEI and CMM;

(b) Cocomo model;

(c) Software configuration management and planning;

(d) Object Oriented Design Concept;

(e) Class diagram;

(f) Software architecture.

SE - 321 - 2016 - 01

B.Sc (HONS.) IN CSE, PART-III, SIXTH SEMESTER EXAMINATION, 2016

CSE-321

(Software Engineering)

Examination Code : 616

Time—3 hours

Full marks—80

[N.B.—The figures in the right margin indicate full marks. Answer any **four** *questions.]*

			Marks
1.	*(a)*	What is the difference between software engineering and system engineering?	3
	(b)	What do you mean by software process? Explain the generic activities followed in all the software process.	1+4=5
	(c)	What is SDLC? Briefly describe each step of SDLC. What are the SDLC models?	1+5+1 =7
	(d)	Explain the waterfall model. Why it is more advantageous than adhoc methods?	5
2.	*(a)*	What are the guidelines that will lead to a good software design?	4
	(b)	Explain with diagram software design model elements.	6
	(c)	Define cohesive and coupling in the contex of modularity.	6
	(d)	Distinguish between top-down and bottom-up design.	4
3.	*(a)*	Briefly describe software testing strategy.	5
	(b)	What is cyclomatic complexity? How cyclomatic complexity is computed in order to find the number of independent path? Explain with an example.	1+5=6
	(c)	What are the differences between white box testing and black box testing?	3
	(d)	Describe different type of loop testing.	6
4.	*(a)*	Differentiate between object-oriented and function-oriented design.	4
	(b)	Why verification and validation is important in testing? Distinguish between software verification and software validation.	2+4=6
	(c)	What is COCOMO model? Mention software quality factors according to McCall.	1+2=3
	(d)	What are the metrics used for estimating cost? Explain the software cost estimation technique.	2+5=7

Marks

5. *(a)* Who should do quality assurance? Mention the goals of software quality group and also norms for formal technical review meeting. 1+2+2 =5

(b) What is software maintenance? Describe various categories of maintenance. Which category consumes maximum effort and why? 1+3+2 =6

(c) What is CASE? Explain the basic building block of CASE. 1+3=4

(d) Distinguish between Re-engineering and Reverse engineering. List the main objectives of Reverse engineering. 3+2=5

6. *(a)* What is debugging? Describe various types of debugging techniques. 1+4=5

(b) Explain the advantages and disadvantages of three design representation techniques such as : *(i)* Flowchart; *(ii)* Pseudo-Code and *(iii)* HIPO. 6

(c) Describe with diagram the process activities of Model-View-controller (MVC) architecture. 6

(d) What are the differences between evolutionary prototyping and throw-away prototyping? 3

SE - 321 - 2015 - 01

B.SC (HONS) IN CSE, PART-III, SIXTH SEMESTER EXAMINATION, 2015

CSE-321

Examination Code : 616

(Software Engineering)

Time - 3 hours

Full marks - 80

[N. B. - Answer any four questions. Students are asked to answer the question sequentially]

		Marks
1.	(a) Write down the IEEE definition of Software Engineering. What are challenges facing software engineering?	5
	(b) Distinguish between software design and software architecture.	3
	(c) Explain Spiral Model with merits and demerits.	7
	(d) Define a software process. List Four reasons why it is difficult to improve software process?	1+4=5
2.	(a) What is the role of SRS in waterfall software development model? Explain.	4
	(b) What is agile process model? How does agile process model involve the stakeholders with the software development?	3+2=5
	(c) What is use case? Depict the online flight reservation system using use case diagram.	2+5=7
	(d) What is prototyping? Mention its types.	4
3.	(a) Explain the factors affecting the software pricing?	5
	(b) Software project planning entails what activities? What are the difficulties faced in measuring the software costs?	3+2=5
	(c) Define software reliability. What is differences between hardware and software reliability?	1+3=4
	(d) Explain how software cost estimation can be achieved using function-point method.	6

4. (a) What are the guidelines of equivalence partitioning? Discuss Boundary Value Analysis regarding equivalence partitioning. 4+3=7

   (b) Distinguish between Black Box testing and White-Box testing. 3

   (c) A chatting software was developed bug free and delivered to the customer. But the software was crashing in low bandwidth scenario. What testing was not done property for the software? How will the company react to fix the bug? Explain. 5

   (d) Narrate the basis path testing method in detail with a suitable example. 5

5. (a) What is Software Quality Assurance (SQA)? Write down the guidelines of Formal Technical Review (FTR). 1+4=5

   (b) Write short notes on the following (any two): - 5×2=10

   (i) Pareto principle;

   (ii) McCall's quality factor;

   (iii) Object-Oriented Design of Software;

   (iv) Software verification and validation;

   (c) What is software configuration management? Why software version and release management are essential? 3+2=5

6. (a) Why is maintenance of software important? Discuss some of the problems that faced during maintenance of software. 2+3=5

   (b) Describe some of the criteria that are used to define effective modular design. 6

   (c) Explain SEI process capability maturity model. What are the Key Process Areas (KPA)? 3+2=5

   (d) 'Cohesion should be high, coupling should be low.' – Why? 4

SE - 321 - 2014 - 01

B.SC (HONS.) IN CSE, PART-III, SIXTH SEMESTER EXAMINATION, 2014

CSE–321

SOFTWARE ENGINEERING

Examination Code-616

Time—3 hours

Full marks—80

[N.B.—The figures in the right margin indicate full marks. Answer any four questions. All questions must be answer sequentially.]

		Marks
1.	(a) What do you mean by software engineering? Is there any difference between software engineering and computer science? Justify your answer.	1+3=4
	(b) Describe rational Unified process (RUP) model including core disciplines and phases.	6
	(c) State and explain some qualities that are used to assess software.	5
	(d) Write down the umbrella activities of software engineering.	5
2.	(a) Brief the process activities of requirements elicitation and analysis with figure.	5
	(b) List some non-functional requirements of software and describe them.	5
	(c) State and explain process maturity levels in SEIs CMM.	7
	(d) Define the following terms: *i.* Agility; *ii.* Agile Team.	3
3.	(a) Define software deign process. State the principles of a software design.	1+4=5
	(b) Explain various object oriented concept used in software engineering.	5
	(c) Discuss about different types of coupling in the context of software design.	5
	(d) What are the factors for effective modular design?	5
4.	(a) What is a boundary value analysis? What are the reasons behind to perform white box and black box testing.	1+5=6
	(b) Distinguish between verification and validation. What are the conditions that exists after perforning validation testing?	2+3=5
	(c) What is cyclomatic complexity? How to compute the cyclomatic complexity.	1+3=4
	(d) What do you mean by alpha and beta testing? Write down the differences between verification and validation.	5

SE - 321 - 2014 - 02

Marks

5. (*a*) What is software maintenance? Describe the various types of software maintenance. 1+4=5

(*b*) Explain software re-engineering process activities with figure. 5

(*c*) Discuss about different types of software cost estimation techniques. 5

(*d*) What is SQA? Write down the responsibilities of a SQA group. 1+4=5

6. Write short notes on the following (any **four**):— 5×4=20

(*a*) Spiral process model;

(*b*) Software reuse;

(*c*) CASE building block;

(*d*) Software configuration management;

(*e*) RAD software process model;

(*f*) Software prototyping.

SE - 321 - 2013 - 01

B.Sc (HONS.) IN CSE, PART-III, SIXTH SEMESTER EXAMINATION, 2013

CSE : 321

Examination Code : 616

(Software Engineering)

Time—3 hours

Full marks—80

[N.B.—The figures in the right margin indicate full marks. Answer any **four** *questions.]*

		Marks
1.	(a) What do you mean by software engineering? What are the key challenges facing software engineering?	1+4=5
	(b) Explain incremental software process model with its merits and demerits.	6
	(c) Write down the principles of agile process method.	5
	(d) Discuss about the professional and ethical responsibilities of a software engineer.	4
2.	(a) What are the objectives of software design? How do we transform an informal design to a detailed design?	2+3=5
	(b) Distinguish between evolutionary, throw-away and rapid prototyping techniques.	5
	(c) Explain the functional and non-functional requirements of software engineering process.	6
	(d) How is software design different from coding? What problems arise if two modules have high coupling?	1+3=4
3.	(a) With an example, explain the use of viewpoint template and service template in VORD method.	5
	(b) Discuss about different types of cohesion in the context of software design.	5
	(c) Distinguish between requirement definition and requirement specification. Define the terms "Use case" and "Stakeholder".	2+2=4
	(d) What are the objectives of testing? What testing principles the software engineer must apply while performing software testing?	2+4=6

SE - 321 - 2013 - 02

Marks

4. (a) Describe the checklist of software testability. Distinguish between white-box and black-box testing. 3+2=5

(b) What are the factors affecting the software pricing? Explain the 'COCOMO' model. 2+5=7

(c) What are the guidelines for equivalence partitioning? 4

(d) What do you mean by software quality? List the characteristics of software quality. 2+2=4

5. (a) What do you mean by SQA? Write down the guidelines of FTR (Formal Technical Review). 2+4=6

(b) Discuss in detail about the software pricing factors. 5

(c) Explain how software cost estimation can be achieved using function-point method. 6

(d) What is software configuration management? Distinguish between re-engineering and reverse engineering. 1+2=3

6. Write short notes on the following (any **four**) :— 5×4=20

(a) V & V software process model;

(b) Object-oriented software engineering;

(c) CASE tools;

(d) Top-down and bottom-up integration testing;

(e) Legacy software;

(f) Capability Maturity Model (CMM).

SE - 321 - 2012 - 01

B.Sc (HONS) IN CSE, PART-III SIXTH SEMESTER EXAMINATION, 2012

CSE-321

(Software Engineering)

Examination Code : 616

Time—3 hours

Full marks—80

[N.B.—The figures in the right margin indicate full marks. Answer any **four** *questions.]*

			Marks
1.	*(a)*	State the IEEE definition of software Engineering. Explain the attribute of a good software product.	1+3=4
	(b)	Distinguish between the following :—	2+2=4
		(i) S/W engineering and computer science;	
		(ii) Evolutionary prototyping and throw-away prototyping.	
	(c)	What are the umbrella activities of S/W engineering? Write down the principles of agile methods.	3+3=6
	(d)	Explain waterfall model with merits and demerits.	6
2.	*(a)*	What are the different types of user requirement process? What are the factors consider in the case of requirement validation?	3+3=6
	(b)	Explain the different types of design principles of software.	5
	(c)	Differentiate horizontal partitioning and vertical partitioning.	4
	(d)	Describe the Model View Controller (MVC) architecture.	5
3.	*(a)*	What are the guidelines that will lead to a good design?	4
	(b)	What are the different types of architectural styles exist for S/W design and explain the Model View Controller (MVC) architecture in detail.	6
	(c)	Discuss about different types of coupling in the context of S/W design.	5
	(d)	What is user interface? Explain the principles of user interface design.	5

SE - 321 - 2012 - 02

Marks

4. (a) What are the objectives of testing? What are the testing principles the software engineer must apply while performing the software testing? M-228, 230 — 2+4=6

   (b) What is black box testing? What are the reasons behind to perform white box testing? M-232, 248, 247, 251 — 1+4=5

   (c) Distinguish between alpha and beta testing, validation and verification. M-231, 228 — 4

   Define debugging. What are the common approaches in debugging? M-235 — 1+4=5

5. (a) Describe S/W quality factors according to McCall. Quality-5-6 — 5

   (b) What is CASE? Explain the basic building block of CASE. M-281 — 1+4=5

   (c) Discuss in detail about the basic COCOMO model in cost estimation of the S/W. Cost-estimation-3-17-18 — 5

   (d) What is S/W maintenance? Discuss the various types of S/W maintenance. M-270 — 2+4=5

6. Write short notes on the following (any **four**) :— 5x4=20

   (a) Object oriented software engineering; pressman—

   (b) Top-down and Bottom-up design; M-186

   (c) Spiral model; —M-183

   (d) Software Requirement Specification (SRS); 269 M

   (e) Software testing strategy; M- 236, 237.

   (f) Data Flow Diagram (DFD). M-109

SE - 321 - 2011 - 01

B.Sc (HONS.) IN CSE PART-III, SIXTH SEMESTER EXAMINATION, 2011

CSE-321

(Software Engineering)

Time—3 hours

Full marks—80

[N.B—The figures in the right margin indicate full marks. Answer any **four** *questions.]*

Marks

1. (a) Define software engineering. What are the objectives of software engineering? 2+2=4

(b) Distinguish between :— 4

(i) Software Engineering and Computer Science;

(ii) Software Engineering and System Engineering.

(c) State and explain the generic activities followed in all the software processes. 5

(d) Discuss Rational Unified Process (RUP) model with merits. 7

2. (a) Define Requirements Engineering (RE). What do you know about Software Requirements Specification (SRS)? 2+2=4

(b) Give a brief description of software prototyping and discuss the various prototyping techniques in a nutshell. 6

(c) With an example explain the use of view point template and service template in the VORD method. 6

(d) Define the terms : Stakeholder, Use case. 4

3. (a) What do you mean by Design Process? 3

(b) Describe procedural design with diagram. 6

(c) Draw work flow diagram for top-down and bottom-up design. 6

(d) Describe logical construction of design. 5

SE - 321 - 2011 - 02

Marks

4. (a) What is software testing strategy? Which strategies are followed to test software? 6

(b) Explain white box testing with necessary diagram. 5

(c) Distinguish white box testing with black box testing. 5

(d) Why verification and validation is important in testing? 4

5. (a) What are the metrics used for estimating cost? Explain how software cost estimation can be achieved using Function point model. 7

(b) What is CCB? Distinguish between configuration management and change management. 6

(c) What is CMM? Describe the five levels defined in the SEI process maturity model. 7

6. Write short notes on any four topic of the following :— 5×4=20

(a) CASE;

(b) Real-time Design;

(c) Debugging;

(d) DFD (Data Flow Diagram);

(e) Loop testing;

(f) Software cost estimation technique.

SE - 321 - 2010 - 01

B.SC (HONS) IN CSE, PART-III, SIXTH SEMESTER EXAMINATION, 2010

CSE-321

Examination Code : 616

(Software Engineering)

Time- 3 hours

Full marks - 80

[N. B. - Answer any four questions. Students are asked to answer the question sequentially]

Marks

1. (a) Give the IEEE definition of SE. What do you know about software crisis? Mention the key challenges facing SE.
   (b) State and briefly discuss four qualities that are used to assess software.
   (c) Distinguish between software process and software process model.
   (d) Explain waterfall model with merits and demerits.
2. (a) Discuss the generic view of SE.
   (b) What is functional and non-functional requirement of SE? Explain.
   (c) Draw and explain the waterfall model.
   (d) "All stakeholders should be involved in requirements elicitation and analysis" - Justify.
3. (a) State the definition of software architecture and software design.
   (b) Mention and briefly discuss some of the software design principles.
   (c) Write the applications of the evolutionary development model.
   (d) What is meant by component-based SE? Explain.

4. (a) Define back box testing? What is meant by software quality assurance?
   (b) State McCall's quality factors. What are the tasks of Configuration Control Board?
   (c) What are the formulas for cyclomatic complexity? Calculate the cyclomatic complexity for greatest of three numbers.
   (d) Distinguish between:
   (i) ISO 9000 and SEI CMM;
   (ii) Walk through and review.
5. (a) What is meant by software costing and software pricing?
   (b) Explain the software cost estimation technique.
   (c) State the COCOMO model.
   (d) What is 40-20-40 rule in software engineering? Discuss.
6. (a) Define the term "Software maintenance"? What is the objective of maintenance?
   (b) Explain maintenance process in SE.
   (c) Discuss about loop testing and Integration testing.
   (d) Write short notes on spiral model.

SE - 321 - 2009 - 01

B.S.(HONS.) IN CSE, PART-III, SIXTH SEMESTER EXAMINATION, 2009

CSE-321

(Software Engineering)

Time—3 hours

Full marks—80

[N.B.—The figures in the right margin indicate full marks. Answer any **four** *questions.]*

Marks

1. (a) What is software engineering? What are the differences between software engineering and system engineering? 6
   (b) Briefly describe each step of Software Development Life Cycle (SDLC). 8
   (c) What is software engineering process? Describe Prototyping process model. 6

2. (a) Write the guideline for a good software design process. 6
   (b) Why software architecture is needed? Describe layer based software architecture model. 6
   (c) Draw a use case diagram that depicts the structural requirements of a Library Management System. 6
   (d) Define cohesion and coupling in context of modularity. 3

3. (a) What factors should be considered when designing interface for human software user. 5
   (b) Describe the principle of Agile method. 5
   (c) What are the concepts of following design pattern when coding? 5
   (d) Describe Model View Controller (MVC) architecture. 5

4. (a) What is the objective of testing? 2
   (b) Explain different testing strategy in brief. 6
   (c) What do you mean by white-box testing? Describe the basis path testing. 2+4=6
   (d) Distinguish between :— 3×2=6
   (i) Alpha and Beta testing;
   (ii) Unit and Module testing.

SE - 321 - 2009 - 02

M.

5. (a) What do you mean by CASE? Show with diagram the building blocks of CASE. P 8 - 281 — 2+3=5

(b) Mention CASE tools with a brief description. P 8 - 282 — 5

(c) Explain each term of the CASE life cycle in an organization. P 8 - 284 — 5

(d) Suggest potential benefits and practical problems of integrating CASE tools. P 8 - 283 — 5

6. Write short notes (any four) :— 5×4=20

(a) Top-down and Bottom-up design; P 8 - 186 M-237, 238

(b) Object oriented software engineering; M-207

(c) Software errors and faults; B-7 & M-259

(d) The design implementation of large multi-modules programs systems;

(e) Software Re-engineering; P 9 - 290

(f) ISO 9126 Software Quality Factors.