VIVEKANAND EDUCATION SOCIETY'S

College of Arts, Science & Commerce

Since 1962

Department of Information Technology
SEMESTER-IV

prelims

CLASS: SYBSc(IT) **SUBJECT: Software engineering** **MAX MARKS: 75**

DATE: 17 april 2018 **TIME: 2 hrs 30 min**

NOTE: 1. All main Questions are compulsory and carry 15 marks
2. Figures to the right indicate marks
3. Give examples wherever necessary.

Set A

Q1 attempt any 3 of 6

a) Explain availability, reliability and dependability of system.
b) Explain waterfall model with a neat diagram.
c) Explain phases of Rational Unified Process.
d) Explain functional and non-functional requirements of software.
Classify the following as functional and non functional requirements
I. Verify bank balance
II. Withdrawing money from bank
III. Completion of transaction in less than one second
e) Explain Component Software Processes
f) Explain CASE classification.

Q2 attempt any 3 of 6

a) Draw a process model of requirement elicitation and analysis
b) Write a short note on Emergent System Properties
c) Explain Essential characteristics of socio technical systems
d) Explain the principles of requirement management
e) Write a note on Legacy systems.
f) Explain why dependability is the most important emergent property for critical system.

Q3 attempt any 3 of 6

a) What are different control style approaches? Explain any 1 in detail.
b) Write a note on reference architecture. Give an example.
c) Write a short note on architectural design decision.
d) Explain UID with its elements and also enlist the issues faced in UI design.
e) Explain three core activities of UI design
f) What is Software Quality Management?Explain the process.

Q4 attempt any 3 of 6

a) Explain Verification and Validation
b) Explain Automated static analysis.
c) What is integration testing? Explain.
d) Explain Verification and Formal Methods.
e) Explain 3 modes of COCOMO .
f) Write a note on size oriented and function oriented metrics

Q5 attempt any 3 of 6

a) Explain stages of CMMI framework
b) Explain how process and product quality are correlated
c) Explain concept of software reuse.
d) Write a note on Reuse Landscape
e) Write a note on SaaS.
f) Explain distributed software engineering.

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Set B

Q1 attempt any 3 of 6

a) Explain Inception, elaboration and construction phase of RUP
b) Explain stages of testing
c) Explain Spiral model with advantages and disadvantages
d) Explain agile development
e) Explain prototyping model
f) Write a short note on SRS template

Q2 attempt any 3 of 6

a) explain legacy system
b) Write a note on dependability of system
c) Explain various steps of requirement engineering
d) Write a note on system models
e) Write a note on context model with diagram and example
f) How to deal with legacy systems

Q3 attempt any 3 of 6

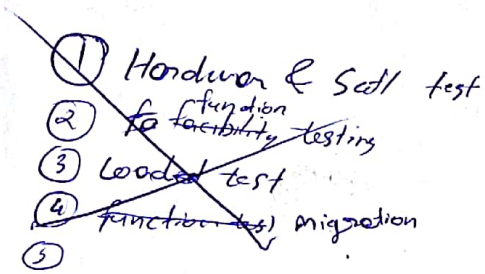
a) What is a reference architecture? Give an example.
b) Explain the need of UI design
c) What is software project management? What is project plan?
d) Explain quality management and standards
e) Write a note on modular decomposition
f) What is risk?How to manage risk?

Q4 attempt any 3 of 6

a) Write a note on size oriented metrics and estimation techniques
b) What is difference between verification and validation
c) Write a note on project duration and staffing
d) What is test automation? what is component test?
e) Explain any cost estimation technique.
f) What is algorithmic cost model

Q5 attempt any 3 of 6

a) Explain process measurement
b) Explain process analysis and modeling
c) Write a note on CMMI process improvement
d) Explain software product lines
e) Explain software as a service
f) Explain architectural patterns for distributed systems



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SET C

Q1 attempt any 3 of 6

a) Explain Layered architecture of software engineering
b) Define software engineering. Explain desired quality attributes of software.
c) Write a short note on Feasibility study
d) What are different software process models? Explain evolutionary model
e) What are different software process models? Explain waterfall model.
f) Enlist types of software. Explain attributes of good software.

Q2 attempt any 3 of 6

a) Explain availability and reliability
b) Explain safety and security
c) Explain requirement validation and requirement management
d) Write a note on object model
e) Write a note on behavioral model
f) Draw and explain process model of requirement elicitation and analysis

Q3 attempt any 3 of 6

a) What is Quality Assurance (QA) ?Explain in brief.
b) What is Quality Control ?Explain in brief.
c) Differentiate QA and QC
d) Write a short note on Software Metrics
e) Draw diagrams to illustrate an example of layered system architecture, data-centered architecture.
f) Write a short note on Project management. What should be qualities of a good manager?

Q4 attempt any 3 of 6

a) Explain project duration and staffing
b) Explain size oriented metrics and estimation techniques
c) What is difference between verification and validation
d) what is component test? What is test automation?
e) What is algorithmic cost model and software productivity
f) Explain any cost estimation technique.

Q5 attempt any 3 of 6

a) Write a note stages of CMMI framework
b) Write a note process and product quality are correlated
c) Write a note concept of software reuse.
d) Explain on Reuse Landscape
e) Explain SaaS.
f) Explain distributed software engineering.

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Set D

Q1 attempt any 3 of 6

a) Explain organizational, operational, economical and technical feasibility
b) Explain tools, methods, process layer of layered architecture
c) Explain hardware and software charecteristics. What is a bathtub curve? Explain
d) Write a note on generic and customized products
e) Explain regulatory,security,business and interface requirements
f) Write a note on advantages and disadvantages ov V model. Also draw diagram

Q2 attempt any 3 of 6

a) Write definitions for Accident,harzard,hazard severity,damage,risk,
b) Write definitions for Threat,Exposure,Attack,vulnerabilty,control
c) Explain type of system models
d) Explain with an example interaction model and components of structured method
e) Explain requirement review process with diagram
f) Write a note on stages of risk based analysis

Q3 attempt any 3 of 6

a) Explain client server model with diagram
b) Explain abstract machine model with diagram
c) Write a note on modular decomposition styles
d) Explain centralized and event based control
e) Explain reference model with diagram
f) Write a note on management activities .what does project plan document consist of?

Q4 attempt any 3 of 6

a) Write a note on integration testing, component and acceptance testing
b) What is "Are we building the right product?" , What is "Are we building the product right?"
c) Explain STATIC AND DYNAMIC VERIFICATION
d) Explain advantages and disadvantages of function oriented metrics
e) Explain software measurement
f) Explain software measurement principles

Q5 attempt any 3 of 6

a) Explain stages of CMMI framework
b) Explain how process and product quality are correlated
c) Explain concept of software reuse.
d) Write a note on Reuse Landscape
e) Write a note on SaaS.
f) Explain distributed software engineering.