



# Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

13/11/18

## End Semester Examination

Nov – Dec 2018

Max. Marks: 60

Class: T.E.

Course Code: IT51

Name of the Course: Software Engineering

Duration: 3Hrs

Semester: V

Branch: Information Technology

### Instruction:

- (1) All questions are compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Q No.		Max. Marks	CO
Q.1 ( a )	What is software process? Describe any three generic process framework activity.	2 3	1
Q.1 ( b )	What problems would a software development organization face if it does not have a documented process model, and therefore follows only an informal one? With the help of diagram describe adaptive software development process model in detail.  OR Describe any three principal of scrum agile process model. with the help of diagram describe the various set of development activities carried out in scrum.	2 5  3 4	1
Q.2 ( a )	Compute function point values, Effort and Cost for the project for the following information domain. Number of external inputs:97 Number of external outputs:75 Number of external inquiries:83 Number of internal logical files:41 Number of external interface files:17 Assume that all complexity values are Average (6,7,6,15,10) The organizational productivity for the system is 1.6 FP/PM and cost of a PM is Rs.35, 000.	6	3
Q.2 ( b )	Discuss the Six reliability Metrics of software product.  OR Define software quality. Describe in detail any four roles of software quality Assurance team.	6  2 4	3



Q.3 ( a )	<p>The IT manager of a sports and fitness company has asked you about Internet Security. The company has an e-commerce website hosted externally by an Internet Services Provider whose staff read orders and other customer inputs from the website prior to storing them in an electronic folder for the company to download. The company also uses a Virtual Private Network (VPN) link with the engineering consultancy which supplies designs for new products. The company also uses email with other businesses in its supply chain.</p> <p>Consider the above scenario and:</p> <p>a) Identify TWO risks from the given scenario.</p> <p>b) Rank the identified risks in priority order.</p> <p>c) Write some mitigation action that is appropriate for each risk, giving your reasons.</p>	2 2 4	3
Q.3 ( b )	Consider the project for development of a management information system. The project manager has identified the main development activities to be, requirement specification, design, code, test and document. Draw a work breakdown structure for the project.	4	3
Q.4 ( a )	<p>Consider the following scenario.</p> <p>Consider a mail order company that distributes CDs and tapes at discount prices to its members. When an order processing clerk receives an order form, she verifies that the sender is a member by checking the MEMBER FILE. If the sender is not a member, the clerk returns the order along with a membership application form. If the customer is a member, the clerk verifies the order item data by checking the ITEM FILE. Then the clerk enters the order data and saves it to the DAILY ORDERS FILE. At the same time the clerk also prints an invoice and shipping list for each order, which are forwarded to the ORDER FULFILLMENT DEPARTMENT for processing there.</p> <p>a) Construct a Context level DFD for the above scenario.</p> <p>b) Decompose your answer in Level 1 and Level 2 DFD</p>	2 6	2
Q.4 ( b )	<p>State whether the following statement True or False.</p> <p>Justify your answer.</p> <p>"Whenever you increase the cohesion of your design, coupling in the design would automatically decreases".</p>	1 3	2
Q.5 ( a )	<p>Why design test cases?</p> <p>Consider the software that computes the square root of an input integer that can assume values in the range of 0 and 5000.</p> <p>a) Determine the equivalence classes and black box test suite.</p> <p>b) Determine the boundary value test suite.</p> <p style="text-align: center;">OR</p> <p>Which type of error are not get uncover in fault based testing?</p> <p>With the help of example describe scenario Based testing.</p>	2 2 2  2 4	4

Q.5 ( b)	<p>Consider the following algorithm</p> <pre> public double calculate(int amount)  double rushCharge = 0; if (nextday.equals("yes") )  rushCharge = 14.50;  double tax = amount * .0725; if (amount ≥ 1000)  shipcharge = amount * .06 + rushCharge;  else if (amount ≥ 200)  shipcharge = amount * .08 + rushCharge;  else if (amount ≥ 100)  shipcharge = 13.25 + rushCharge;  else if (amount = 50)  shipcharge = 9.95 + rushCharge;  else if (amount ≥ 25)  shipcharge = 7.25 + rushCharge;  else  shipcharge = 5.25 + rushCharge;  total = amount + tax + shipcharge; return total; //end calculate  a) Draw the flow graph. b) Determine the cyclomatic complexity. c) Determine the basis set of independent paths. </pre>		4
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