HallTicket No | | | | | | | | | | | Question Paper Code:AIT008

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

MODEL QUESTION PAPER II

Four Year B.TechVII Semester End Examinations, November-2019

Regulations: R16

SOFTWARE TESTING METHODOLOGY

(Computer Science and Engineering)

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

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1.	a)	State and explain various dichotomies in software testing?	**[7M]**
	b)	Discuss about requirements, features and functionality bugs.	**[7M]**
2.	a)	To what extent can testing be used to validate that the program is fit for its purpose. Discuss?	**[7M]**
	b)	What are control and sequence bugs? How they can be caught?	**[7M]**

UNIT – II

3.	a)	What is meant by transaction flow testing? Discuss its significance.	**[7M]**
	b)	What is meant by data flow model? Discuss various components of it?	**[7M]**
4.	a)	Compare data flow and path flow testing strategies?	**[7M]**
	b)	What is meant by a program slice? Discuss about static and dynamic program slicing	**[7M]**

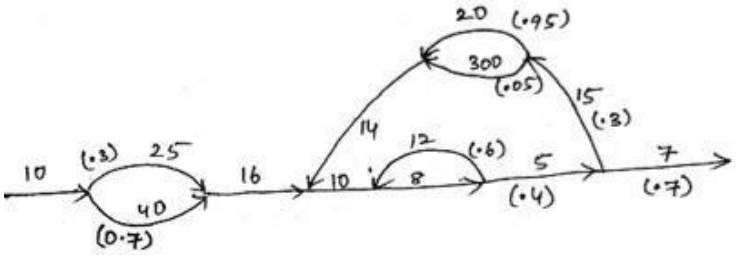
UNIT – III

5.	a)	Explain various properties related to Ugly-domains.	**[7M]**
	b)	With a neat diagram, explain the schematic representation of domain testing.	**[7M]**
6.	a)	State and explain various restrictions at domain testing processes.	**[7M]**
	b)	What is meant by nice - domain? Give an example for nice two - dimensional domain.	**[7M]**

UNIT – IV

7.	a)	**Explain** the application to find the minimum number of paths in a graph? Explain with example.	**[7M]**
	b)	**Write** short notes on i. Path Products ii. Path Expressions. iii. Path Sums iv. Loops	**[7M]**
8.	a)	**Write** short notes on: i.Distributive laws ii.Absorption Rule iii.Identity Elements	**[7M]**

b) **Evaluate** the mean processing time of a program represented by the following flow graph. **[7M]**
Numbers in the brackets are the probabilities and the other numbers are processing times.



UNIT – V

9 a) What are the principles of state testing? Discuss advantages and disadvantages. **[7M]**
b) The behavior of a finite state machine is invariant under all encodings. Justify? **[7M]**

10. a) Explain about good state and bad state graphs **[7M]**
b) Explain with an example how to convert specification into state-graph. Also discuss how contradictions can come out. **[7M]**

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COURSE OBJECTIVES

The course should enable the students to:

I	Understand the concept of software testing objectives, process criteria, strategies and methods.
II	Demonstrate various software testing issues and solutions in software like unit test, integration, regression and system testing.
III	Demonstrate the techniques and skills on how to use modern software testing tools to support software testing projects.
IV	Understand important concepts of complexity metrics and object oriented metrics.

COURSEOUTCOMES:

CO 1	To understand the basic concepts of testing, path testing and sensitization
CO 2	An Ability to learn about about the transaction flow testing
CO 3	To understand the concepts of domain based testing and logic based testing
CO 4	To describe about the path product and data flow anomaly detection
CO 5	To understand the concepts of transition testing

COURSE LEARNING OUTCOMES:

AIT008.01	Explain the importance of testing and purpose of testing.
AIT008.02	Illustrate different and compare dichotomies of testing.
AIT008.03	Demonstrate the model for testing and different testing levels and role of models.
AIT008.04	Describe the consequences and taxonomy of bugs and different bugs in project environment.
AIT008.05	Illustrate the concepts of path testing and predicate loops and path sensitization.
AIT008.06	Explain Path instrumentation and their applications and link markers.
AIT008.07	List Transaction flows techniques and transaction flow structures and their test databases.
AIT008.08	State Basics of data flow testing and Strategies in data flow testing, applications of dataflow testing.
AIT008.09	Describe Domains and paths and. explain about domains and bugs and their tool effectiveness
AIT008.10	Demonstrate Domains and Interfaces testing.
AIT008.11	Explain about domains and testability
AIT008.12	Describe Logic based testing and Decision tables and compare hardware and software testing.
AIT008.13	Illustrate Path expression and KV Charts and their specifications.
AIT008.14	State Path products and path expression, different laws used in path testing.
AIT008.15	Demonstrate Reduction procedure and applications.
AIT008.16	Explain about Regular expressions
AIT008.17	Demonstrate about Flow anomaly detection
AIT008.18	Explain State Graphs and state testing
AIT008.19	Demonstrate about the Testability Tips.
AIT008.20	Explain finite state behavior in state graphs

MAPPING OF SEMESTER END EXAM TO COURSE LEARNINIG OUTCOMES:

SEE Question No		Course Learning Outcomes		Course Outcomes	Blooms Taxonomy Level
1	a	AIT008.02	Illustrate different and compare dichotomies of testing.	CO 1	Understand
	b	AIT008.04	Describe the consequences and taxonomy of bugs and different bugs in project environment.	CO 1	Remember
2	a	AIT008.03	Demonstrate the model for testing and different testing levels and role of models.	CO 1	Understand
	b	AIT008.04	Describe the consequences and taxonomy of bugs and different bugs in project environment.	CO 1	Understand
3	a	AIT008.07	List Transaction flows techniques and transaction flow structures and their test databases.	CO 2	Understand
	b	AIT008.08	State Basics of data flow testing and Strategies in data flow testing, applications of dataflow testing.	CO 2	Remember
4	a	AIT008.08	State Basics of data flow testing and Strategies in data flow testing, applications of dataflow testing.	CO 2	Understand
	b	AIT008.08	State Basics of data flow testing and Strategies in data flow testing, applications of dataflow testing.	CO 2	Understand
5	a	AIT008.09	Describe Domains and paths and. explain about domains and bugs and their tool effectiveness	CO 3	Understand
	b	AIT008.10	Demonstrate Domains and Interfaces testing.	CO 3	Understand
6	a	AIT008.10	Demonstrate Domains and Interfaces testing.	CO 3	Understand
	b	AIT008.09	Describe Domains and paths and. explain about domains and bugs and their tool effectiveness	CO 3	Understand
7	a	AIT008.14	State Path products and path expression,different laws used in path testing.	CO 4	Remember
	b	AIT008.14	State Path products and path expression,different laws used in path testing.	CO 4	Remember
8	a	AIT008.16	Explain about Regular expressions	CO 4	Remember
	b	AIT008.17	Demonstrate about Flow anomaly detection	CO 4	Remember
9	a	AIT008.18	Explain State Graphs and state testing	CO 5	Remember
	b	AIT008.20	Explain finite state behavior in state graphs	CO 5	Understand
10	a	AIT008.18	Explain State Graphs and state testing	CO 5	Remember
	b	AIT008.18	Explain State Graphs and state testing	CO 5	Understand

Signature of Course Coordinator **HOD, CSE**