Birla Institute of Technology & Science, Pilani
Work Integrated Learning Programmes Division
First Semester 2022-2023

Mid-Semester Test
(EC-2 Regular)

Course No.	:	SE ZG552
Course Title	:	Software Testing Methodologies
Nature of Exam	:	Open Book
Weightage	:	35%
Duration	:	2 Hours
Date of Exam	:	25/09/2022 (FN)

No. of Pages = 1
No. of Questions = 7

Note to Students:
1. Please follow all the *Instructions to Candidates* given on the cover page of the answer book.
2. All parts of a question should be answered consecutively. Each answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Q.1 You are building a web application which can be used globally. You need to validate a web page which takes Name (only alphabets), mobile number, Gender, DOB(DD/MM/YYYY) as input to fetch employee records from the application server. Design at least 10 different test cases to validate all the above-mentioned input fields. Please use Boundary value analysis and Equivalence partitioning techniques while designing/writing test cases. (5 marks)

ANS:

BVA: # of test cases=4*n+1, robust = 6*n+1
Name: 3 <= name length <= 50
Mobile: mobile length = 10
Gender: 0 <= gender <= 1 (M=0, F=1)
DOB: 01/01/1960 <= dob <= current_date

T1: name length = min = 3
T2: name length = min+1 = 4
T3: name length = min-1 = 2
T4: name length = max = 50
T5: nl = max-1 = 49
T6: nl = max + 1 = 51
T7: nominal = (3+50)/2 = 26

T3: mobile length = 10
T4: gender = 0

T5: dob = 01/01/1960

Eq Class Part:
Name: c1: [a-zA-Z], c2: any char except [a-zA-Z]
Mobile: c1: 1000000000 <= mobile <= 9999999999, c2: mobile < 1000000000, c3: mobile > 9999999999
Gender: c1: 0 <= gender <= 1, c2: gender < 0, c3: gender > 1
DOB: c1: 01/01/1960 <= dob <= current_date, c2: dob < 01/01/1960, c3: dob > current_date

T1: name=”abcd”
T2: name=”39*#”

Q.2 Build a decision table and simplify the same. Customer can withdraw money from ATM. ATM machine pays out the amount if the customer enters correct pin and if customer has sufficient funds in their account or if the customer has the credit granted. ATM should also have enough funds to dispense the cash as per the customer request. (5 marks)

2^n = 2^3 = 8

Stub Rule1 R2

C1 correct pin	T	T	T	T	F	F	F	F	
C2 enough cash in account	T	T	F	F	T	T	F	F	
C3 enough cash in machin	T	F	T	F	T	F	T	F	
A1 withdraw cash	X								
A2 not able to withdraw cash		X	X	X	X	X	X	X	
Not applicable									

Q.3 Using decision table, identify all the Rules and Action stubs. Construct decision table for the give scenario. If customer buys any car of price more than 5Lakh, they will get 5% discount (festive offer). Repeat/loyal customer gets an additional discount 2% cash back irrespective of the car model/cost as per the policy. If the mentioned vehicle is not in stock and expected to be delivered July 1st, additional 4% service tax is added in the form of GST if the vehicle price is more than 5L and only 2% service tax added if the price is less than 5L. Customer pays using the credit card, additional 2.5% will be charged as bank service tax. (5 marks)

C1 Price less than 5
C2 repeat loyal customer
C3 not in stock and expected on 1st july
C4 is paying using credit card
A1 get 5% dicsount
A2 discount 2% cash back
A3 additional 4% service tax
A4 2% service tax added
A5 additional 2.5% will be charged as bank service tax.
A5 Not applicable

Q.4 Explain the various testing techniques available? Mention the purpose/intention/objective of each testing technique? Who does the testing? At what stage of SDLC, which type of testing can be done? (5 marks)

Q.5 Explain how change in the project requirements can be accommodated? Which software development life cycle model can be chosen when change in the requirements are inevitable as business is so dynamic? Justify? (5 marks)

Q.6 Describe the various differences between black box, white box and Grey box testing techniques in a tabular format with right examples (5 marks).

Index	Black Box Testing	White Box Testing	Grey Box Testing
1	Knowledge of internal working structure (Code) is not required for this type of testing. Only GUI (Graphical User Interface) is required for test cases.	Knowledge of internal working structure (Coding of software) is necessarily required for this type of testing.	Partially Knowledge of the internal working structure is required.
2	Black Box Testing is also known as functional testing, data-driven testing, and closed box testing.	White Box Testing is also known as structural testing, clear box testing, code-based testing, and	Grey Box Testing is also known as translucent testing as the tester has limited knowledge of

		transparent testing.	coding.
3	The approach towards testing includes trial techniques and error guessing method because tester does not need knowledge of internal coding of the software.	White Box Testing is proceeded by verifying the system boundaries and data domains inherent in the software as there is no lack of internal coding knowledge.	If the tester has knowledge of coding, then it is proceeded by validating data domains and internal system boundaries of the software.
4	The testing space of tables for inputs (inputs to be used for creating test cases) is pretty huge and largest among all testing spaces.	The testing space of tables for inputs (inputs to be used for creating test cases) is less as compared to Black Box testing.	The testing space of tables for inputs (inputs to be used for creating test cases) is smaller than Black Box and White Box testing.
5	It is very difficult to discover hidden errors of the software because errors can be due to internal working which is unknown for Black Box testing.	It is simple to discover hidden errors because it can be due to internal working which is deeply explored in White Box testing.	Difficult to discover the hidden error. Might be found in user level testing.
6	It is not considered for algorithm testing.	It is well suitable and recommended for algorithm testing.	It is not considered for algorithm testing.
7	Time consumption in Black Box testing depends upon the availability of the functional specifications.	White Box testing takes a long time to design test cases due to lengthy code.	Test cases designing can be done in a short time period.
8	Tester, developer and the end user can be the part of testing.	Only tester and developer can be a part of testing; the end user can not involve.	Tester, developer and the end user can be the part of testing.
9	It is the least time-consuming process among all the testing processes.	The entire testing process is the most time consuming among all the testing processes.	less time consuming than White Box testing.
10	Resilience and security against viral attacks are covered under Black Box testing.	Resilience and security against viral attacks are not covered under White Box testing.	Resilience and security against viral attacks are not covered under Grey Box testing.
11	The base of this testing is external expectations	The base of this testing is coding which is responsible	Testing based on high-level database

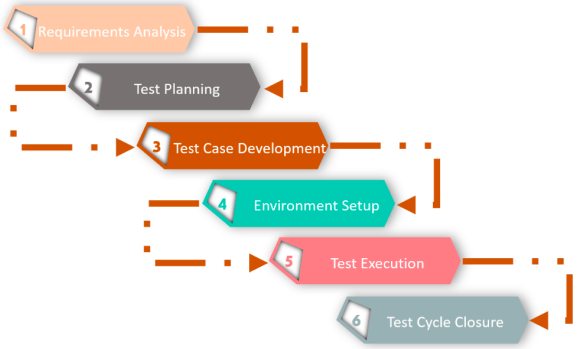
	internal behavior is unknown.	for internal working.	diagrams and dataflow diagrams.
12	It is less exhaustive than White Box and Grey Box testing methods.	It is most exhaustive between Black Box and Grey Box testing methods.	Partly exhaustive; depends upon the type of test cases are coding based or GUI based.

Q.7 Explain any 5 important benefits of Software Testing Life Cycle (STLC). Explain Entry Criteria and Exit Criteria in STLC (5 marks).

https://www.edureka.co/blog/software-testing-life-cycle/

What is Software Testing Life Cycle (STLC)?

Software Testing Life Cycle (STLC) defines a series of activities conducted to perform Software Testing. It identifies what test activities to carry out and when to accomplish those test activities. In the STLC process, each activity is carried out in a planned and systematic way and each phase has different goals and deliverables.



What are the different phases of Software Testing Life Cycle?

The different phases of Software testing life cycle are:

****