|  |  |
| --- | --- |
| Name | ID |
| Jana Hossam | 20196015 |
| Doaa Gamal | 20196020 |
| Salma Ayman | 20196025 |
| Menna yasser | 20206078 |

The estimated time for each part is indicated by E.T.

# MCQ Write the letter of the most correct answer [E.T. =30][30 marks]

Part A: Lec1&2 Product Quality & Measuring system complexity:

1. SQFs are affected by which types of the following requirements:

|  |  |
| --- | --- |
| 1. Product operation requirements | 1. Product revision requirements |
| 1. Product transition requirements | D)All of the above |

1. It is how well the software does what it is supposed to do..

|  |  |
| --- | --- |
| A) Correctness | B) Efficiency |
| C) Reliability | 1. Usability |

1. Which of the following is not a primary software quality factor (SQF)?

|  |  |
| --- | --- |
| A) Correctness | B) Integrity |
| C) Reliability | D) Maintainability |

1. A web server has been running for a week and recorded 5000 accesses, out of which 200 attacks were made. If 75 of these were denial-of-service attacks (of which 20 were successful), 50 were password guessing attacks (with 5 successful attempts), and 75 were accidental attacks (of which 60 were successful), what is the integrity of the server?

|  |  |
| --- | --- |
| A) 0.935 | B) 1.976 |
| C) 2.913 | D) 2.983 |

*Threat for denial-of-service attacks = 75/5000 = 0.015*

*Security for denial-of-service attacks = (75-20)/75 = 0.7333*

*Integrity for denial-of-service attacks = 1 - 0.015 \* (1 - 0.7333) = 0.996*

*Threat for password guessing attacks = 50/5000 = 0.01*

*Security for password guessing attacks = (50-5)/50 = 0.9*

*Integrity for password guessing attacks = 1 - 0.01 \* (1 - 0.9) = 0.999*

*Threat for accidental attacks = 75/5000 = 0.015*

*Security for accidental attacks = (75-60)/75 = 0.2*

*Integrity for accidental attacks = 1 - 0.015 \* (1 - 0.2) = 0.988*

*Integrity of the server = 0.996 + 0.999 + 0.988 = 2.983*

1. Which type of testing checks that a system meets the customer’s requirements?

|  |  |
| --- | --- |
| A) Usability testing. | B) Developmental testing. |
| C) Unit testing. | D) Requirements-based testing. |

1. Is used to test that each aspect of the customer’s requirements is handled correctly by an implementation.

|  |  |
| --- | --- |
| A)White box testing | B) Black box testing |
| C)Grey box testing | D)None of the above |

1. What is Cyclomatic complexity?

|  |  |
| --- | --- |
| A)White box testing | B) Black box testing |
| C)Grey box testing | D)None of the above |

1. Lines of Code (LOC) is the key measures of which of the following metrics?

|  |  |
| --- | --- |
| A)Function oriented | B)Extended function point |
| C)Size oriented | D)All of the above |

1. Use the following class diagram to compute depth of inheritance tree (DIT).

Diagram

Description automatically generated

|  |  |
| --- | --- |
| A) DIT=1 for class Employee | B) DIT=2 for class BasePlusComissionEmployee |
| C) DIT=1 for class BasePlusComissionEmployee | D) DIT=2 for class HourlyEmployee |

1. What's the complexity of the following code using LOC metric and McCabe's Cyclomatic complexity metrics

int i = 1;

int j = 0;

while (i <= 5 ) {

playACard(i);

if (playerHasWon(i) && j < 2) {

break;

} else if (playerHasLost(i)) {

System.out.println("Player " + i + " has lost the game!");

}

if (i % 2 == 0) {

System.out.println("Player " + i + " has an even card.");

} else {

System.out.println("Player " + i + " has an odd card.");

}

j++;

i++;

}

|  |  |
| --- | --- |
| A)LOC=17 , complexity =6 | B) LOC=17 , complexity =5 |
| C) LOC=16 , complexity =5 | D) LOC=16 , complexity =6 |

Part B: Lec3&4 Securing architecture:

1. Which of the following is true with respect to layered architecture?

|  |  |
| --- | --- |
| 1. Each layer is allowed to depend on the layer above it being present and correct. | 1. A layer may call other layers above and below it, as long as it uses them. |
| 1. All of the mentioned. | 1. None of the mentioned. |

1. What is TRUE about three schema architecture?

|  |  |
| --- | --- |
| A) specific database system is described by this framework. | B) Separating user applications from physical databases is also achieved by using the three-schema architecture. |
| C) Based on this architecture, there are three tiers. Three different categories are identified for the database. | D)All of the above |

1. Which of the following is correct?

|  |  |
| --- | --- |
| A) Layers are not strongly coupled to the layers above them | B) Each layer is strongly coupled only to the layer immediately below it |
| C) Overall Layered-style architectures are loosely coupled | D) All of the mentioned |

1. Design patterns are patterns for the skeleton and abstract view of the software?

|  |  |
| --- | --- |
| A) True | B) False |

1. Which of the following is true with respect to layered architecture?

|  |  |
| --- | --- |
| A) A Layered-style program is divided into an array of modules or layers. | B) Each layer provides services to the layer “below” and makes use of services provided by the layer “above”. |
| C) All of the mentioned. | D) None of the mentioned. |

1. ….. is a software entity that allows the lookup of services, service providers and their location:

|  |  |
| --- | --- |
| 1. Registry | 1. Service Finder |
| 1. Service Provider | 1. Consumer |

1. Flask is a …..:

|  |  |
| --- | --- |
| A) lightweight web application framework | B) frontend framework |
| C) backend framework | D) database framework |

1. …… is used to share data written with JavaScript object notation.

|  |  |
| --- | --- |
| A) XML | B) YAML |
| C)JSON | D)AXON |

1. The following code snippet has an API that……:

from flask import Flask, request

from flask\_restful import Resource, Api

from sqlalchemy import create\_engine

from json import dumps

from flask.ext.jsonpify import jsonify

db\_connect = create\_engine('sqlite:///chinook.db')

app = Flask(\_\_name\_\_)

api = Api(app)

class Employees(Resource):

def get(self):

conn = db\_connect.connect() # connect to database

query = conn.execute("select \* from employees") # This line performs query and returns json result

return {'employees': [i[0] for i in query.cursor.fetchall()]} # Fetches first column that is Employee ID

|  |  |
| --- | --- |
| A) Reads Data from Database | B) Deletes Data from Database |
| C) Updates Data to Database | D) Create a new table |

1. Service, Provider, Consumer and Registry are all parts of the ………. infrastructure

|  |  |
| --- | --- |
| A) Monolithic | B) Microservices |
| C) Software as a Service (SOA) | D) Client Server |