

Course Title: E-Commerce Course Code: CCE4238 Year: 4th
Date: 15/06/2023 (Final Exam – Second Term) Allowed Time: 3 Hrs No. of Pages: (4) (Model A)

Choose the correct answer (65 Marks)

اسم الطالب:

(يقوم الطالب بكتابة الاسم على ورقة الأسئلة وتسليمها مع ورقة الإجابة)

- Which feature of E-Commerce refers to the complexity and content of a message?
A) Interactivity B) Information richness C) Global reach D) Personalization
- is an e-commerce that is focused on engaging the consumer based on his or her current geographic location.
A) Mobile E-Commerce B) Social E-Commerce
C) Local E-Commerce D) B2B E-Commerce
- Which of the following describes how a company will produce a superior return on invested capital?
A) Value Proposition B) Business Model C) Competitive Advantage D) Revenue Model
- are the types of information systems capabilities needed to meet business objectives.
A) System functionalities B) Information requirements
C) System design specifications D) Physical design specifications
- and are typically the most easily identifiable aspects of a company's business model.
A) Market strategy; market opportunity B) Value proposition; revenue model
C) Value proposition; competitive environment D) Revenue model; market strategy
- is an outline of the actions and decisions a company plans to take to reach its goals and objectives.
A) Business objectives B) Vision
C) Business strategy D) Value proposition
- Which element of the business model addresses the question of why a customer should buy from the firm?
A) Revenue model B) Competitive advantage C) Market strategy D) Value proposition
- Which of the following involves a company giving away a certain level of product or services without charge, but then charging a fee for premium levels of the product or service?
A) Advertising revenue model B) Subscription revenue model
C) Freemium strategy D) Transaction fee revenue model
- Attempting to hide true identity by using someone else's e-mail or IP address
A) Phishing B) Pharming C) Denial of Service (DoS) D) Spoofing
- A perfect market is one in which
A) One firm develops an advantage based on a factor of production that other firms cannot purchase.
B) One participant in the market has more resources than the others.
C) Competition is at a minimum, as each market within an industry is served by the company with the greatest competitive advantage.
D) There are no competitive advantages or asymmetries because all firms have equal access to all the factors to production.

- An e-commerce site that cost \$20,000 to develop is likely to require a yearly maintenance budget of approximately:
A) \$1,000 B) \$10,000 C) \$20,000 D) \$50,000
- When attackers flood a website with traffic to overwhelm the network, it is called
A) Phishing B) Pharming C) Denial of Service (DoS) D) Spoofing
- Which of the following is not a dimension of e-commerce security provided by encryption?
A) Availability B) Message integrity C) Nonrepudiation D) Confidentiality
- Which of the following typically includes a data flow diagram to describe the flow of information for a Web site?
A) Physical design B) Logical design C) Testing plan D) Co-location plan

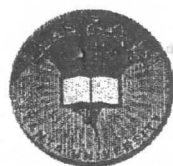
Question (2): True or False

(20 Marks)

- Sniffer is defined as an eavesdropping program monitoring monitors information traveling over a network.
- A cost competition strategy is a strategy to compete within a narrow market segment or product segment.
- Buy-Side E-Marketplace is defined as a private e-marketplace in which one company makes purchases from invited suppliers.
- Vertical scaling refers to employing multiple computers to share the workload.
- Page generation can be enhanced by segregating computer servers to perform dedicated functions (such as static page generation, application logic, media servers, and database servers), and using various devices from vendors to speed up these servers.
- Business model is a Set of planned activities designed to result in a profit in a marketplace, while the Business plan Describes a firm's business model.
- Customer intimacy focuses on developing strong ties with customers.
- Agile breaks down a large project into a series of smaller subprojects that are completed in short periods of time using iteration and continuous feedback.
- System testing involves testing the site's program modules one at a time.
- B2C is the largest form of e-commerce.

Best Wishes,
Dr. Amr Elkholy

11. consists of building a sample or model rapidly and inexpensively to test a concept or process.
A) Agile B) Incremental model C) Prototyping D) Waterfall model
12. are wealthy individuals or a group of individuals who invest their own money in exchange for an equity share in the stock of a business; often are the first outside investors in a start-up.
A) Angel investors B) Crowdfunders C) Incubators D) Venture capital investors
13. Which of the following is not considered to be one of the e-commerce phases?
A) Innovation B) Preservation C) Consolidation D) Reinvention
14. Which of the following is *not* a community provider?
A) LinkedIn B) Facebook C) Noon D) Pinterest
15. In architecture, a web server is linked to a middle-tier layer that typically includes a series of application servers that perform specific tasks, as well as to a backend layer of existing corporate systems containing product, customer, and pricing information.
A) Single-tier B) Two-tier C) Multi-tier D) None of these
16. Which of the following is *not* a variation of the e-tailer business model?
A) Bricks-and-clicks B) Virtual merchant C) Market creator D) Manufacturer-direct
17. Which of the following is not a B2B business model?
A) E-distributors B) E-procurement C) Industry Consortia D) E-tailer
18. is a single point of access, through a Web browser, to critical business information located inside and outside (via the Internet) an organization?
A) Webstore B) E-Mall C) Web Portal D) None of the above
19. The source of revenue in a subscription revenue model is
A) Fees from advertisers in exchange for advertisements.
B) Fees for business referrals.
C) Fees from subscribers in exchange for access to content or services.
D) Fees for enabling or executing a transaction.
20. is a strategy to compete in all markets around the globe, rather than merely in local, regional, or national markets.
A) Product/service differentiation B) Cost competition
C) Scope D) Focus/market niche
21. What are the two most important management challenges in building a successful e-commerce presence?
A) Developing a clear understanding of business objectives and knowing how to choose the right technology to achieve those objectives.
B) Having an accurate understanding of your business environment and an achievable business plan.
C) Building a team with the right skill sets and closely managing the development process.
D) Identifying the key components of your business plan and selecting the right software, hardware, and infrastructure for your site.
22. is a form of testing that involves showing two versions (A and B) of a web page or website to different users to see which one performs better.
A) System testing B) Acceptance testing
C) Unit testing D) A/B testing



Tanta University

Department: Computers & Automatic Control
Engineering



Faculty of Engineering

Course Title: Control and Instrumentation In Industrial Processes

Course Code: CCE4237-3

Date: 1/6/2023 (Second term)

Allowed time: 3 Hours

Year: 4th Comp. & Control

No. of Pages: (3)

Total Mark: 90 point

Answers all the following questions:

Question No.1 :(20 point divided as a=4 , b=4, c=4,d=4, e=4 points)

- Draw a block diagram to create a human being model that contains its natural sensors as well as its networks and transducers modules existed in such human being.
- Draw a block diagram that contains most components of the elements that make up a feedback path in a process-control loop. The diagram should include the measuring elements, the control element, and the controller element that has a processor with a memory and a summing circuit to compare the set point to the sensed signal so that it can generate an appropriate error signal in order to enhance its performance.
- Explain with the aid of a block diagram how an automatic control of a heat exchanger process can be able to control and adjust the flow of steam to the heat exchanger to keep the temperature of the water at its predetermined value.
- Explain how to construct a block diagram of elements that make up the feedback path in a process-control loop including most of well-known measuring element such as a sensor, a transducer, a transmitter, a control element, a power control circuit, and its own power supply.
- State the types of control systems that are used in the industrial control system (ICS).

Question No.2 :(20 point divided as a=5 , b=5, c=5,d=5 points)

- Consider a controlled dynamical process which has the following second-order integrating process given as:

$$G(s) = \frac{y(s)}{u(s)} = \frac{(s+1)}{s^2}$$

where y is the output and u is the input of the process.

- Derive a linear time-invariant state space description of this process.
- State by direct inspection of the transfer function G(s) whether the system is controllable and/or observable.
- Find by direct inspection of the transfer function G(s) the eigenvalues of the system and check its stability.
- Draw a state diagram for the dynamical description derived in part (i) using only integrator blocks.

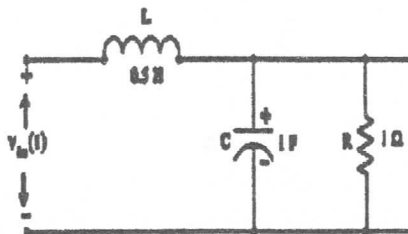
- Consider the following dynamical equation that describes a dynamical physical process given as:

$$\ddot{y}(t) = 3\dot{z}(t) - 2z(t)$$

where y(t) is a process's output and z(t) is an input to such process.

- Write the transfer function G(s) = y(s) / z(s)
 - Find by direct inspection of the transfer function G(s) obtained in part (i) the eigenvalues of the system and check its stability.
 - Draw a state diagram using only integrator blocks and show whether it can be considered as an open or closed loop system.
- Consider the network shown in Fig.1
 - Derive a transfer function of the network as v_o(s) / v_{in}(s)
 - Draw a simulation diagram that describes the dynamical of the network using the appropriate function blocks with a sine wave block as an input source and show how to get v_R on the diagram.

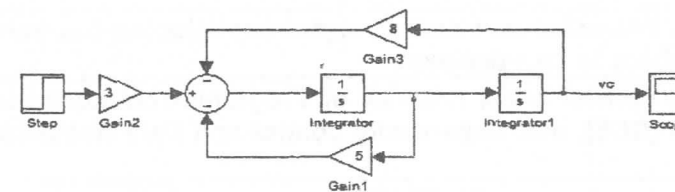
Fig.1



Please Turn the Page Over

- Consider a Simulink diagram shown in Fig2 which represents a dynamical linear system.

Fig2



- Write the corresponding state space dynamical representation in the form

$$\dot{x} = Ax + Bu, \quad y = Cx,$$

Where A, B are constant matrices, C is a constant row vector, x is a state variable vector, and y is an output voltage v_c.

- Show whether the system obtained in (i) can controlled or not.

Question No.3 :(20point divided as a=4 , b=8, c=8 points)

- Consider the following dynamical equation

$$\ddot{u}(t) = 3\ddot{w}(t) - \dot{w}(t) - w(t), \quad y(t) = \dot{w}(t) + w(t)$$

Where w(t) is a system variable, y(t) is the output of the system, and u(t) is an input to the system.

Draw a Simulink diagram using the appropriate function blocks and the scope block to simulate the system and get the output block to be shown on the Simulink diagram.

- State with the aid of block diagrams the main difference between the traditional integrated sensor and the smart sensor.
- State the advantages and disadvantages of using SCADA systems in the industrial processes control.

Question No.4 :(30 point divided as a=6, b=6, c =6, d =12points)

- Draw a block diagram for components of a smart sensor that contains both network capable application processor and transducer interface module.
- State the advantages and disadvantages of using a smart sensor in the industrial processes.
- State the types of industrial networks and their basic security elements that are needed to secure them.
- Write only in your answer's booklet the word (yes or no) for all statements in the following table:

i—A smart Sensor which is called a system on chip has no ability to take decision and consist of transduction element, signal conditioning electronic, and controller/processor.	(yes/no)
ii—The presence of a controller in a smart sensor has no tools to correction some different undesirable sensor characteristics which include span variation, non-linearity, and cross-sensitivity.	(yes/no)
iii— The anatomy of a SCADA system consists of four essential elements.	(yes/no)
iv—Data acquisition card (DAQ) is a PC card with analog and digital I/O interface that needs no software or user-generated code for its operation.	(yes/no)
v—Transducers are devices that have the ability to change one form of energy to another.	(yes/no)
vi—Transmitters are devices used to decrease and format signals so that they are suitable for transmission over long distances with zero or minimal loss of information.	(yes/no)
vii—Resolution is the largest amount of a variable that an instrument can resolve, i.e., the largest change in a variable to which the instrument will respond.	(yes/no)
viii —Some advantages of using SCADA systems in the industrial processes control are easy maintained (self-diagnostic), capability to do arithmetic function, and the ability to communicate with other controller or a master host computer.	(yes/no)
ix—One of the advantage of using a smart sensor is that its construction consists of both actuators & sensors, so it is simpler other than a classical one.	(yes/no)
x—A controller presented in the construction of a smart sensor has led to many advantages such as: corrections for different undesirable sensor characteristics and non-linearity.	(yes/no)

Please see the third Page

xi—A smart sensor which consists of transduction element, signal conditioning electronic, and controller/processor has no ability to take decision.	(yes/no)
xii—The types of industrial networks consist of: A network of Programmable controllers (PLC), Distributed Control Systems (DCS), and Supervisory control and Data Acquisition (SCADA) systems.	(yes/no)
xiii—The main purpose of basic security elements in SCADA systems and are needed to secure industrial networks are to prevent break-in, put locks and have alarms to warn that a break-in has occurred as well as software security & reliability criteria.	(yes/no)
xiv—Transducers are devices that have the ability to change one form of energy to another one.	(yes/no)
xv—Network security measure used in SCADA system has the most secure encryption of data.	(yes/no)
xvi—SCADA components consist of a field instrumentation as well as a communication network with some control centers.	(yes/no)
xvii—Most Key Priorities of Control Strategy appeared with SCADA are : Balance generation & demand (dispatching), Monitor flows and observe system limits, Coordinate maintenance activities, and Protect equipment from damage	(yes/no)
xviii—A SCADA system depends solely on remote terminal units (RTUs) used in collecting data field.	(yes/no)
xix—Network security measures used in SCADA system have Authentication, Authorization and Accounting (AAA) with no Encryption of data.	(yes/no)
xx— SCADA components consist of a field instrumentation and a communication network.	(yes/no)
xxi—Functions of SCADA system include only some of the following items: Information Display , Supervisory Control, Alarm Processing & Tagging, Information Storage & Reports, Data Calculation, and special RTU Processing Control.	(yes/no)
xxii—The preferred power supply for SCADA systems is the alternating current (AC) station system where these station systems can be inherently more reliable than direct current (DC).	(yes/no)
xxiii—SCADA systems can be used in some processes applications such as higher education systems as well as all information technology (IT).	(yes/no)
xxiv—Actuators are devices that are used to control an input variable in response to a signal from a controller.	(yes/no)

End of all Questions

Have a good Luck

Examinars: Prof.Dr. MohamedTalaatFaheem

Dr.Marwa Mahmoud Badr



Course Title: **Information System Design** Course Code: **CCE4235** **Fourth Year Students**
 Date: **8-6-2023 (End-of-Semester Exam)** Time Allowed: **3 Hours** No. of Pages: **(4)**

Answer the following questions.

Question (1 - a)

(50 Marks)

Shade the circle of the most appropriate answer in your electronic answer sheet:

- 1) When was Apache Spark developed?
 a) 2007 b) 2008 c) 2009 d) 2010
- 2) Solid principles were promoted by which of these?
 a) Robert Hook b) Robert Rich c) Robert Martin d) Robert Downy
- 3) Concerning the solid principle which of these is odd?
 a) Dependency Inversion Principle b) Liskov Substitution Principle
 c) Interface Segregation Principle d) Single Reconstruction Principle
- 4) What does a Burndown Chart display?
 a) Amount of remaining work with respect to time b) Project Progress
 c) The velocity of the team d) The capacity of the team members
- 5) If Waterfall is plan driven, then Scrum is _____
 a) Client driven b) PO drive c) Business value driven d) none of these
- 6) What is done during a Sprint retrospective Meeting?
 a) Inspect progress towards the Sprint Goal
 b) Present the Project's performance to the Stakeholders
 c) Discuss the architectural and technical aspects of the project
 d) The team discusses the improvements that can be applied for the upcoming sprints
- 7) How is Product Backlog Arranged?
 a) Items are randomly arranged b) Large items at the top, small items at the bottom
 c) Newer stories prioritized on top, followed by older stories
 d) High priority items on top, followed by low priority items
- 8) Which one is not part of the Agile Manifesto?
 a) Continuous Attention b) Continuous Delivery of Business Value
 c) Working Daily Together d) Maximize utilization
- 9) Transaction of data of the bank is a type of.
 a) Structured Data b) unstructured Data c) SemiStructured data
- 10) The general purpose of the Singleton pattern is to:
 a) Ensure that no more than one instance of a class exists.
 b) Ensure that only one instance of a class exists at the same time.
 c) Separate objects in a single class from objects in another class.
 d) Control creation of objects in a single class or another class.
- 11) Design patterns can be classified in _____ categories.
 a) 1 b) 2 c) 3 d) 4
- 12) Which design pattern is used to provide a way to encapsulate the creation of objects without specifying their concrete classes?
 a) Abstract Factory b) Builder c) Prototype d) Factory
- 13) Which design pattern is used to provide a way to separate the construction of a complex object from its representation?

- a) Prototype Pattern b) Builder Pattern
 c) Abstract Factory Pattern d) Factory Method Pattern
- 14) Which of the following is a module for Structured data processing?
 a) MLlib b) GraphX c) Spark R d) Spark SQL
- 15) Which of the following language is not supported by Spark?
 a) Python b) Scala c) Java d) Pascal
- 16) When does Apache Spark evaluate RDD?
 a) Upon action b) Upon transformation
 c) On both transformation and action d) None of these
- 17) In an Agile team, who is responsible for quality?
 a) The developers b) The testers c) The product owner d) The entire team
- 18) When the customer in an Agile project provides feedback indicating that a piece of functionality was not implemented correctly, what should the Agile team do with this information?
 a) Record it and put an item in the backlog for consideration by the team
 b) Stop all planned development and implement the change for the customer
 c) Write a defect report and address the issue when the backlog has been cleared
 d) Update the requirements document and require customer sign-off before implementing any changes
- 19) The SOLID design principles make software design more
 a) Distinct b) Useful c) Autonomous d) Maintainable
- 20) Which of the following is a disadvantage of using MapReduce?
 a) It can only process small amounts of data. b) It has a high latency.
 c) It requires specialized hardware. d) It is difficult to use.
- 21) What happens if a number of reducers are set to 0?
 a) Reduce-only job take place b) Map-only job take place
 c) Reducer output will be the final output d) None of these
- 22) Which of the following phases occur simultaneously
 a) Shuffle and Map b) Shuffle and Sort c) Reduce and Sort d) None of these
- 23) Which of the following is delivered at the end of the Sprint?
 a) A document containing test cases for the current sprint
 b) An architectural design of the solution
 c) An increment of Done software d) Wireframes designs for User Interface
- 24) Agile Software Development is based on
 a) Incremental Development b) Iterative Development
 c) Linear Development d) Both Incremental and Iterative Development
- 25) Which chart depicts the amount of work done in the project?
 a) burn-down b) burn-up c) Both a and b d) None of these
- 26) What is the Interface Segregation Principle?
 a) Classes that implement interfaces should not be forced to implement methods they do not use. Another way of putting it is: use small interfaces, not fat ones.
 b) Focuses on the cohesiveness of interfaces with respect to the implementors that use them
 c) Keep each implementation independent of interfaces that they do not use.
 d) Classes implementation should only be modified to correct errors; new or changed features would require a subclass be created
- 27) Which of the following data structures are Spark DataFrames built on top of?
 a) Arrays b) Strings c) RDDs d) Vectors e) SQL Tables
- 28) Which of the following is not true for map() Operation?

- a) Map transforms an RDD of length N into another RDD of length N.
- b) It applies to each element of RDD and it returns the result as new RDD
- c) Map allows returning 0, 1 or more elements from map function.
- d) In the Map operation developer can define his own custom business logic.
- 29) Which of the following is action in Apache Spark?
 - a) Distinct()
 - b) Count()
 - c) Union(dataset)
 - d) Intersection(other-dataset)
- 30) Fault Tolerance in RDD is achieved using
 - a) Lazy-evaluation
 - b) Immutable nature of RDD
 - c) DAG (Directed Acyclic Graph)
 - d) None of the above
- 31) What is Git?
 - a) A Programming Language
 - b) A version Control System
 - c) A nickname for Github
 - d) A remote repository framework
- 32) What would lead you to apply the builder design pattern?
 - a) to abstract steps of construction of objects so that different implementations
 - b) to apply the same object construction procedure on variety of representations
 - c) both a & b
 - d) none of above
- 33) What is a transformation in Spark RDD?
 - a) Takes RDD as input and produces one or more RDD as output.
 - b) The ways to send result from executors to the driver
 - c) Returns final result of RDD computations.
 - d) None of these
- 34) In how many ways RDD can be created?
 - a) 2
 - b) 3
 - c) 4
 - d) 5
- 35) _____ may have a certain structure but not all information collected has identical structure.
 - a) Structured data
 - b) Semi-structured data
 - c) Unstructured data
 - d) None of these
- 36) Which of the following is not the feature of Spark?
 - a) Fault-tolerance
 - b) It is cost efficient
 - c) Supports in-memory computation
 - d) Compatible with other file storage system
- 37) Multiple inheritance is
 - a) When a class is derived from another class
 - b) When a class is derived from two or more classes
 - c) When a class is derived from other two derived classes
 - d) When a class is derived from exactly one class
- 38) Spark is developed in which language
 - a) R
 - b) Java
 - c) Scala
 - d) Python
- 39) Command to create a new git branch?
 - a) git checkout branchname
 - b) git create-branch branchName
 - c) git branch branchName
 - d) git -b branchName
- 40) What is action in Spark RDD?
 - a) Creates one or many new RDDs
 - b) The ways to send result from executors to the driver
 - c) Takes RDD as input and produces one or more RDD as output.
 - d) All of the above
- 41) Which of the following is the reason for Spark being Speedy than MapReduce?
 - a) RDDs are immutable and fault-tolerant
 - b) Support for different language APIs like Scala, Java, Python and R
 - c) DAG execution engine and in-memory computation
 - d) None of the above

- 42) Which problem arises due to multiple inheritance, if hierarchical inheritance is used previously for its base classes?
 - a) Diamond
 - b) Circle
 - c) Triangle
 - d) Loop
 - 43) C++ allows the objects of different types to respond differently to the same function call, is called
 - a) inheritance
 - b) polymorphism
 - c) Encapsulation
 - d) the Map() Functions/tasks.
 - 44) _____ function is responsible for consolidating the results produced by each of the Map() Functions/tasks.
 - a) Reduce
 - b) Map
 - c) Reducer
 - d) All of the mentioned
 - 45) What are agile manifesto principles?
 - a) Customer satisfaction
 - b) Changes in requirements are welcome
 - c) Face-to-face communication within a development team
 - d) All of the mentioned
 - 46) Which is distributed file system developed by Google.
 - a) HDFS
 - b) GFS
 - c) GDS
 - d) HDS
 - 47) Which SOLID design principle is most closely described by the given statement: classes should depend on abstractions rather than implementations.
 - a) Single Responsibility Principle
 - b) Liskov Substitution Principle
 - c) Interface Segregation Principle
 - d) Dependency Inversion Principle
 - 48) What is the purpose of YARN in Hadoop?
 - a) To manage resources and schedule jobs in Hadoop
 - b) To store and manage large amounts of unstructured data
 - c) To provide real-time access to large datasets
 - d) To process and analyze large datasets
 - 49) Which of the following is not a characteristic of Big Data?
 - a) Volume
 - b) Velocity
 - c) Variety
 - d) Validation
 - 50) is a record that keeps track of where is the data coming from, what was collected and how it was analyzed.
 - a) SparkStreaming
 - b) data provenance
 - c) RDD
 - d) None of these
- Question (1 - b)**
- Shade the circle in your electronic answer sheet (choose True / False):**
- 1) If a class obeys the LSP, then it should throw an exception if it is used in a function that requires its parent class.
 - 2) Agile is a collection of principles used in software development and project management.
 - 3) Design pattern is a solution to a problem that occurs repeatedly in a variety of contexts.
 - 4) Spark is modified version of Hadoop.
 - 5) In Object-Oriented programming (OOP), the primary purpose of "polymorphism" is to reuse your code.
 - 6) The Sprint in scrum is extended when the work takes longer than expected.
 - 7) HDFS is the Hadoop component is responsible for storing data on disk.
 - 8) Every Spark application requires a spark context.
 - 9) Director in builder pattern is abstract interface for creating parts of "Product" object.
 - 10) Using the Singleton Pattern leads to a violation of SRP.



Tanta University

Department: Control and Computers Dept.

(60Marks)

Faculty of Engineering

Course Title: Computers and Networks Security

Date: 12/6/2023(Final Exam)

Model **A**

Course Code: CCE3113

Allowed Time: 3 hours

امتحان أربع ورقات - أرجو اجابة السؤال الثالث في ورقة الاجابة العادية.

Question 1: (25 Marks) Choose the correct answer:

- Installed on each host device and protect data in-use is a
(a) DLP storage sensors.
(b) DLP agent sensors.
(c) DLP network sensors.
- In public key cryptography, a key that decrypts the message.
(a) unique key
(b) public key
(c) private key
- Explained as the better understand who the attackers are, why they attack and what type of attacks might occur.
(a) Threat modeling.
(b) Vulnerability appraisal.
(c) Threat evaluation.
- Encryption standard that is selected by the US government to replace Data Encryption Standard (DES).
(a) AES
(b) BES
(c) CES
- In computer security, means that the information in a computer system only be accessible for reading by authorized parties.
(a) Confidentiality
(b) Integrity
(c) Availability
- Logging mechanism can be an example of
(a) Acceptance.
(b) Risk mitigation.
(c) Deterrence.
- Remote-access in VLAN used
(a) SSL protocol.
(b) IP Sec Protocol.
(c) Post Office Protocol.
- Protect data from unauthorized users techniques called....
(a) Data packets.
(b) DPL.
(c) IPS.
- Penetration testing technique which tester has in-depth knowledge of network and systems being tested known as
(a) Black box test.
(b) White box test.
(c) Gray box test.
- Remote-access in VLAN used
(a) SSL protocol.
(b) IP Sec Protocol.
(c) Post Office Protocol.
- Malware that changes its internal code to a predefined mutation whenever executed defined as
(a) Polymorphic malware.
(b) Oligomorphic malware.
(c) Metamorphic malware.
- Which option is the default switch port port-security violation mode?
(a) Shutdown.
(b) Restrict.
(c) Protect.
- in security policy, collection of requirements specific to system or procedure that must be met by everyone known as
(a) Guideline.
(b) Standard.
(c) Policy.
- Policy that defines actions users may perform while accessing system known as
(a) Privacy policy.
(b) Acceptable use policy.
(c) Ethics policy.
- Malware possesses which spreading rapidly to other systems in order to impact a large number of users defined as.....
(a) Concealment.
(b) Infection.
(c) Circulation.
- Which of the IPsec modes provides entire packet encryption?
(a) Tunnel
(b) Transport
(c) Payload

- A digital signature is required.....
(a) for all Email sending.
(b) for non-repudiation of communication by a sender.
(c) for all FTP transactions.
- An algorithm in encryption is called....
(a) Algorithm
(b) Procedure
(c) Cipher
- in security policy, collection of suggestions that should be implemented known as
(a) Guideline.
(b) Standard.
(c) Policy.
- Performs deep analysis of network traffic, searching for signs of suspicious or malicious behavior defined as
(a) IPS.
(b) VPN.
(c) Firewall.
- Both sides of the trunk port should be with the same Native VLAN?
(a) Allowed.
(b) Restricted.
(c) Configured.
- Techniques which allow scattered users to be logically grouped together even if attached to different switches called
(a) VLAN.
(b) HIDS.
(c) NIDS.
- Small window appearing over Web site usually created by advertisers called
(a) Pop-up.
(b) Spam.
(c) packet pass.
- Defenses are designed to restrict access to equipment areas defined as
(a) External perimeter defenses.
(b) Internal physical defenses.
(c) Hardware security.
- Flaw or weakness that allows a threat agent to bypass security defined as
(a) Vulnerability.
(b) Threat likelihood.
(c) Risk.
- Designed to protect data at rest is a
(a) DLP storage sensors.
(b) DLP agent sensors.
(c) DLP network sensors.
- Networking which can grouping individuals based on some sort of affiliation and can be physical or online known as
(a) Social.
(b) P2P.
(c) Virtual.
- A unique piece of information that is used in encryption.
(a) Cipher.
(b) Key.
(c) Cipher.
- Installed on the perimeter of the network to protect data in-transit by monitoring all network traffic is a
(a) DLP storage sensors.
(b) DLP agent sensors.
(c) DLP network sensors.
- designed to exploit system weaknesses.
(a) Third-party integration.
(b) Penetration testing.
(c) Vulnerability scan.
- Mantraps classified as
(a) External perimeter defenses.
(b) Internal physical defenses.
(c) Hardware security.
- Firewall examines each..... that are entering or leaving the internal network.
(a) Data packets.
(b) Connections.
(c) Updates.
- When a standard biometrics reject authorized users this called....
(a) false negative.
(b) false positive.
(c) Keystroke dynamics.
- In Cryptography, the same key is used by the sender and the receiver.
(a) symmetric key.
(b) asymmetric key.
(c) public key.
- means concealing the message by converting it with something else.
(a) Cryptography.
(b) Stenography.
(c) Compressing.
- A process of making the encrypted text readable again.
(a) Network Security.
(b) Encryption.
(c) Decryption

37. Policy that outlines how organization uses personal information it collects known as
- Privacy policy.
 - Acceptable use policy.
 - Ethics policy.
38. In security policy, Document that outlines specific requirements that must be met known as
- Guideline.
 - Standard.
 - Policy.
39. Document that outlines protections to ensure organization's assets face minimal risks known as
- Security Policy.
 - Baseline.
 - Reporting.
40. List potential threats from threat agent defined as
- Threat identification.
 - Asset identification.
 - Threat evaluation.
41. The information that gets transformed in encryption is.....
- Plain text
 - Encrypted text
 - Decrypted text
42. In a phishing, attackers target the technology to so social engineering.
- WI-FI network
 - Operating systems
 - Emails
43. Determine damage resulting from attack and assess likelihood that vulnerability is risk to organization.
- Threat identification.
 - Asset identification.
 - Risk assessment.
44. Policy that guides employees in decision making known as
- Privacy policy.
 - Acceptable use policy.
 - Ethics policy.
45. Planes and policies established by an organization to ensure that people correctly use the product is defined as.....
- People.
 - Procedures.
 - Products.
46. In the digital signature technique when the whole message is signed using an asymmetric key, the receiver of the message uses to verify the signature.
- her or his own private key.
 - The sender's public key.
 - her or his own public key.
47. An encryption technique with 2 keys is.....
- Cryptography
 - Private key cryptography
 - Public key cryptography
48. The following are the goals of network security, EXCEPT;
- Threat assessment
 - Asset assessment
 - Risk assessment
49. Black hat, White hat and Grey hat classified as
- Hackers.
 - Script kiddies.
 - Insiders.
50. Process of inventorying items with economic value is called...
- Threat identification.
 - Asset identification.
 - Risk assessment.

Question 2: (25 Marks) True/False

- Symmetric key is often used for long message.
- Security control defined as the any device or process that is used to reduce risk.
- As security is increased, convenience is often increased.
- NIDS sensors installed on firewalls and routers.
- Well-known port numbers (1024-49151) reserved for most universal applications.
- SMT protocol Handles incoming mail.
- Senior security-IT staff is responsible for implementing security policy.
- Common Access Card (CAC) issued by US Department of Defense.
- A person who uses his or her expertise to gain access to other people's computers to get information illegally or do damage is a Hacker.
- Flight time defined as a time it takes to press and release a key.
- Encryption is the study of creating and using decryption techniques.
- RADIUS protocol in AAA server listens on UDP port 1645 (legancy) or 1812 for authentication and authorization.
- Tokens are a small devices with a window display, synched with an authentication server and code changes every 30 to 60 seconds.

(3)

- The rootkit is in charge and hides what is occurring on the computer.
- As security is increased, convenience is often increased.
- Baseline reporting is checklist against which systems can be evaluated and audited for security posture
- Wireshark is an example of a software that captures packets to decode and analyze contents.
- When implement a Patch Management the Operating systems have decreased in size and complexity.
- VLAN is connected to the different switches and different tagging protocols used for communicating between switches.
- Dwell time defined as a time between keystrokes.
- Security policy attempts to provide right amount of trust.
- Due care obligations imposed on owners and operators of assets.
- In RSA, if user A wants to send an encrypted message to user B, the plaintext is encrypted with the public key of user A.
- Smart card contains integrated circuit chip that holds information.
- Free calendar program is an example of Trojan hourse malware.
- Screensavers should be set to resume with a password to defense against password file theft.
- Three security goals are confidentiality, integrity and availability.
- The RSA algorithm for confidentiality uses symmetric cryptography.
- Ransomware is a type of malware which designed to collect important data from the user's computer and make it available at the attacker.
- Harm may be intentional or non-intentional.
- Wireshark is an example of a software that captures packets to decode and analyze contents.
- As a password defence enter a password while connected to an unencrypted wireless network.
- Trunk port means port can pass traffic of more than one VLAN.
- TACACS+ protocol in AAA Server listens on UDP port 1646 (legacy) or 1813 for accounting.
- Dynamic Auto and Nonegotiate modes are available when a switch port is used as a VLAN.
- Right Management Services used to protect data from unauthorized users.
- Security policy design should be the work of a team.
- Encryption/decryption can provide authentication, integrity and nonrepudiation for a message.
- Reasons social networking sites are popular with attackers.
- The phrase Phishing describe viruses, worms, Trojan horse attack applets and attack scripts.
- Dynamic and private port numbers (49152-65535) available for use by any application.
- The destructive power of malware can be found in its payload capabilities.
- For Trunking negotiation Ports should have same native VLAN.
- Worm actions allowing a remote control of a computer by an attacker.
- One of the CMT duties is to recommend approval, disapproval, deferral, or withdrawal of a requested change
- End users is responsible for complying security policy.
- Plain text is the data after encryption is performed.
- One of the CMT duties is to recommend approval, disapproval, deferral, or withdrawal of a requested change
- A successful parse means the input is semantically correct.
- Vulnerability Scanners can detect when an internal system begins to port scan other systems.

Section 3. Question 3: (10 Marks)

- Match the property of matter from the left column with the appropriate measurement device or technique on the right.

a.	Spyware	captures and stores each keystroke that a user types on the computer's keyboard.
b.	Keylogger	Program that delivers advertising content in manner unexpected and unwanted by the user.
c.	Adware	software that gathers information without user consent.
d.	Logic bomb	attacker pretends to be someone.
e.	Vishing	Typo squatting.
f.	Hoaxes	voice phishing.
g.	URL hijacking	sending an email claiming to be from legitimate source.
h.	Watering hole attack	a false warning, usually claiming to come from the IT department.
i.	Phishing	a malicious attack that is directed toward a small group of specific individuals who visit the same website.
j.	Impersonation	computer code that lies dormant until it is triggered by a specific logical event.

Dr. Tahani Allam ---

End of Exam ---

Enjoy ---



Question 1-a) Multiple Choice Questions -Use Electronic Sheet (50 Points)

- Which of the following is not a part of the GSM network?
a) Mobile station
b) Base station subsystem
c) Network subsystem
d) Computer subsystem
- What is the function of the Base Station Controller (BSC) in the GSM network?
a) To manage the radio frequency resources
b) To authenticate users
c) To route calls between different cells
d) To manage the core network
- Which of the following is not a component of the Network Subsystem in GSM?
a) Mobile Switching Center (MSC)
b) Home Location Register (HLR)
c) Visitor Location Register (VLR)
d) Base Station Transceiver Station (BTS)
- Which of the following is not a function of the Home Location Register (HLR) in GSM?
a) Storing subscriber data
b) Authenticating users
c) Updating location information
d) Providing billing information
- Which of the following is not a function of the Visitor Location Register (VLR) in GSM?
A) Registering the location of a mobile station
B) Storing information about the subscriber's services and restrictions
C) Authenticating the subscriber's identity
D) Providing access to the Home Location Register (HLR)
- Which of the following is the air interface standard used in GSM?
a) CDMA
b) TDMA
c) FDMA
d) OFDMA
- Which of the following is not a function of the Mobile Switching Center (MSC) in GSM?
a) Routing calls between different cells
b) Authenticating users
c) Managing the core network
d) Providing billing information
- Which of the following is not a component of the Base Station Subsystem (BSS) in GSM?
a) Base Station Controller (BSC)
b) Base Transceiver Station (BTS)
c) Antenna
d) Mobile Station (MS)
- What is the main concept of Mobile Computing?
a) Mobile communication
b) Mobile hardware
c) Mobile software
d) All of the above
- What is the meaning of "roaming" in the context of Mobile Computing?
a) Using a mobile device while connected to a fixed physical link
b) Using a mobile device while on the move from one place to another

- Accessing data remotely from a fixed location
- None of the above

11. What is the main advantage of Mobile Computing?

- Access data anywhere and anytime
- Connect mobile devices with other electronic devices
- Compute remotely while on the move
- All of the above

12. How has Mobile Computing helped in terms of Time Management?

- Reduces time consumed while travelling to the office
- Access important documents and files remotely
- Enhanced telecommuting in many companies
- All of the above

13. What is User Mobility in Mobile Computing?

- Ability to move from one device to another and use the same service
- Ability to move from one network to another and use the same service
- Ability to move from one physical location to another and use the same service
- Ability to move from one user-agent environment to another

14. What is Host Mobility in Mobile Computing?

- Ability to move from one device to another and use the same service
- Ability to move from one network to another and use the same service
- Ability to move from one physical location to another and use the same service
- The user should be either a client or server

15. What is Service Mobility in Mobile Computing?

- Ability to move from one device to another and use the same service

- Ability to move from one network to another and use the same service
- Ability to move from one physical location to another and use the same service
- Ability to move from one service to another

16. Which stage of the Mobile Computing function involves the different transport bearers' interface?

- User with the device
- Network
- Gateway
- Middleware

17. Which of the following is a technique used to transmit multiple signals simultaneously over a single communication channel by dividing the frequency spectrum of the channel into smaller sub-bands?

- TDM
- FDMA
- FRMA
- TDMA

18. What is a cell in a cellular system?

- A group of mobile devices
- A group of base stations
- A group of servers

19. What is the main purpose of cell sectorization in cellular networks?

- To reduce interference between adjacent cells
- To increase the number of channels available in a cell
- To improve signal strength in the cell center

20. What is the benefit of cell splitting?

- Reducing interference and increasing capacity
- Increasing interference and reducing capacity
- Decreasing coverage area

21. Which of the following is a common cause of multipath fading in cellular systems?
- A) Interference from other wireless devices
 - B) Absorption by atmospheric gases
 - C) Reflection and scattering of radio waves
 - D) Electrical noise in the transmission line

22. Which of the following is an example of microscopic diversity used to overcome the effects of multipath fading in cellular systems?
- A) Transmitting signals at different frequencies
 - B) Using multiple antennas at the transmitter and receiver
 - C) Varying the transmission power based on the received signal strength
 - D) Transmitting redundant data to improve error correction.

26. Which of the following describes the CSMA/CD process when a collision occurs on the network?
- a) All devices involved in the collision stop transmitting and wait for a random time before retransmitting
 - b) The device causing the collision stops transmitting and waits for a random time before retransmitting
 - c) The device causing the collision increases its transmission power to overpower other devices
 - d) All devices involved in the collision continue transmitting simultaneously, resulting in data corruption

27. Which network technology primarily uses CSMA/CD?
- a) Ethernet
 - b) Wi-Fi
 - c) Token Ring
 - d) ATM

23. What is Wireless Application Protocol (WAP)?
- A. A programming model based on TCP/IP protocol stack design
 - B. A standard that enables mobile devices to interact over the internet
 - C. A software tool for HTML programming
 - D. A device used for wireless communication

24. What is the programming model on which WAP is based?
- A. Hierarchical design
 - B. Object-oriented programming
 - C. Machine learning
 - D. Functional programming

25. What are the three levels of the WAP model?
- A. Server, Gateway, Client
 - B. Origin Server, User Agent, Gateway
 - C. Client, Gateway, Origin Server
 - D. User Agent, Client, Server

28. How does the hidden terminal problem impact wireless network performance?
- a) It increases network latency and slows down data transmission.
 - b) It enhances network security by preventing unauthorized access.
 - c) It improves network efficiency by reducing signal congestion.
 - d) It has no impact on network performance; it only affects signal strength.

29. What does the carrier sense mechanism do to address the hidden terminal problem?
- a) It adjusts the transmission power of wireless terminals based on signal strength.
 - b) It assigns specific time slots for each wireless terminal to transmit data.
 - c) It enables wireless terminals to sense the medium for ongoing transmissions before sending data.

- d) It divides the available frequency spectrum into smaller channels for simultaneous data transmission.

30. Why does the hidden terminal problem occur in wireless networks but not in wired networks?
- a) Wireless networks have physical cables that obstruct signal transmission.
 - b) Wired networks have stronger signal strength compared to wireless networks.
 - c) Wireless networks rely on shared medium for communication, unlike dedicated cables in wired networks.
 - d) Wired networks have better collision detection mechanisms than wireless networks.

31. What is the hidden terminal problem in wireless networks?
- a) It occurs when wireless devices are physically hidden or difficult to locate.
 - b) It refers to the inability of wireless devices to detect signals from access points.
 - c) It describes the situation when multiple wireless devices transmit simultaneously, causing interference.
 - d) It arises when two wireless devices cannot detect each other's signals due to distance or obstacles.

32. How can the hidden terminal problem in wireless networks be solved?
- a) By increasing the power output of all wireless devices on the network.
 - b) By using directional antennas to focus the signal transmission.
 - c) By implementing carrier sense multiple access with collision avoidance (CSMA/CA).
 - d) By deploying additional access points to improve signal coverage.

33. What does the CSMA/CA mechanism do to address the hidden terminal problem?
- a) It assigns specific time slots for each wireless device to transmit data.

- b) It adjusts the transmission power of wireless devices based on signal strength.
- c) It enables wireless devices to sense the medium for ongoing transmissions before sending data.
- d) It uses frequency hopping to mitigate interference in wireless networks.

34. Which of the following is a characteristic of the CSMA/CA mechanism?
- a) It allows simultaneous transmission of data from multiple wireless devices.
 - b) It ensures collision-free data transmission in wireless networks.
 - c) It relies on a centralized controller to coordinate wireless device communications.
 - d) It introduces random backoff periods to reduce the probability of collisions.

35. What is an alternative solution to address the hidden terminal problem in wireless networks?
- a) Implementing time division multiple access (TDMA) for synchronized data transmission.
 - b) Using shielded cables in wireless networks to reduce signal interference.
 - c) Increasing the frequency spectrum allocated for wireless communication.
 - d) Employing encryption techniques to enhance wireless network security.

36. How does GPS determine the location of a user?
- a) By triangulating signals from GPS satellites
 - b) By analyzing Wi-Fi signals in the vicinity
 - c) By accessing cellular tower data
 - d) By using geolocation based on IP address

37. What is the purpose of the GPS receiver in the GPS system?
- a) To transmit location data to the GPS satellites