



ARKA JAIN University, Jharkhand

5th Semester Final Examination – 2019-20

Subject: COMPUTER SECURITY

Branch – Computer Science & Engg.

Time: 3 Hours

Course: Polytechnic

Full Marks: 70

Pass Marks: 28

- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts – A, B & C.
- Part-A is compulsory.
- Part B contains SIX questions out of which FOUR questions are to be answered.
- Part C contains SIX questions out of which THREE questions are to be answered.

PART A

Q.1) All questions are compulsory

A] Multiple Choice Questions:

(10x1=10)

- “Shoulder-surfing” is a term that refers to
 - User protecting screen contents using shoulder.
 - Attack that relies on user surfing malicious sites.
 - Recording screen contents.
 - Acquisition of sensitive data through browser’s history.
- Term CIA in cryptography refers to
 - Confidentiality, Integrity and Availability.
 - Confidential Intelligence Agents.
 - Completeness, Integrity and Availability.
 - Ciphertext Information Agents.
- Which one of the following is a passive attack?
 - Distributed denial of service attacks.
 - Traffic analysis attacks.
 - Man-in-the-middle attack.
 - Tapping cables/connectors to victim machine.
- Computer system assets can be modified only by authorized parties is termed as _____?
 - Confidentiality
 - Availability
 - Integrity
 - Authenticity
- Consider the following two statements:
 - A worm mails a copy of itself to other systems.
 - A worm executes a copy of itself on another system.
- Which of the following is true?
 - Both I and II are true
 - I is true and II is false
 - Both I and II are false
 - I is false and II is true
- The common name used for crime of stealing password is called _____.
 - Spooling
 - Polling

- c. Spoofing
 - d. Identify theft
- viii. Which of the following forms the basis for the classification of cryptographic algorithms?
- a. Secrecy of algorithms, Ciphertext alphabets, Key size, Usage statistics.
 - b. Secrecy of algorithms, Number of keys, Key size, Symmetry of process.
 - c. Usage statistics, Number of keys, Key size, OS Specification.
 - d. Plaintext alphabets, Number of keys, Key size, Symmetry of process.
- ix. Which of the following malicious program do not replicate automatically?
- a. Trojan Horse
 - b. Virus
 - c. Worm
 - d. Zombie
- x. Which of the following is a class of computer threat?
- a. Soliciting
 - b. Stalking
 - c. Phising
 - d. Dos Attacks

B] Very Short question

(5x2=10)

- a) Define: (a) Cryptanalysis (b) Shoulder-surfing
- b) How Substitution technique works?
- c) What do you mean by Application hardening?
- d) State the difference between Symmetric and Asymmetric cryptography.
- e) Define: (a) Dumpster diving (b) Cryptography

PART B

Q.2) Answer any four

(4x5=20)

- a) What are the approaches towards web traffic security?
- b) Difference between Internet and Intranet.
- c) What Are The Types Of Firewalls?
- d) What are secure coding techniques
- e) Briefly explain the advantages of Digital signature.
- f) Define: (a) Piggybacking (b) Rail fence technique

PART C

Answer any three

(3x10=30)

- Q.3)** Discuss the concept of Hashing. The keys 22, 8, 13, 2, 3, 23, 5 and 15 are inserted into an initially empty hash table of length 10 using open addressing with hash function $h(k) = k \text{ mod } 10$ and linear probing. What is the resultant hash table?
- Q.4)** Describe in detail secure socket layer and transport layer security. Draw diagram to explain.
- Q.5)** What is Firewall? Discuss in detail the design principles and its limitations.
- Q.6)** What is IPSec and how it works? Explain.
- Q.7)** Explain Diffie-Hellman algorithm. How does Diffie-Hellman algorithm works and why it is secure?
- Q.8)** What is the difference between digital certificate and digital signature? Discuss the steps for verifying integrity and authenticity of a digital certificate.

- a) Passing itself to another method
 - b) Calling another constructor in constructor chaining
 - c) Referring to the instance variable when local variable has the same name
 - d) Passing itself to method of the same class
- 9) Which of the keyword must be used to inherit a class in java?
- a) Extends
 - b) super
 - c) This
 - d) new
- 10) Using which of the following, multiple inheritances in Java can be implemented?
- a) Private methods
 - b) protected methods
 - c) Interfaces
 - d) abstraction

B] Very Short Question

(5*2=10)

- a) Why is a class called as factory of objects?
- b) What is the use and syntax of ternary operator?
- c) Define Type Casting in java.
- d) What is the use of 'super' keyword?
- e) What is an exception?

PART-B

Q.2 Answer any four:

(4*5=20)

- i) Define Byte code and explain its purpose in java?
- ii) Differentiate between break and continue statements in java.
- iii) What is a wrapper class? Explain the terms autoboxing and unboxing.
- iv) Write a program to display the use of the keyword extends.
- v) What is a package? Explain different types of package in java.
- vi) Write a program to display the use of any two math functions.

PART-C

Answer any three:

(3*10=30)

Q.3 Differentiate between Applet and application? Write an applet code to draw a polygon?

Q.4 What is meant by multithreading? Explain the life cycle of a thread with a neat diagram.

Q.5 What is method overloading? Write a program to display constructor overloading.

Q.6 Write a program to overload a function Sum() as follows :

i) void Sum(int n, int double x) - with one integer argument and one double argument to find and display the sum of the given series:

$$s = x/1 - x/2 + x/3 - x/4 + \dots \text{ up to } n \text{ terms}$$

ii) void Sum() - to find and display the sum of given series:

$$s = 1! + 2! + 3! + \dots \text{ up to } n \text{ terms}$$

Q.7 What is a String? Write a program to display the use of any 4 String functions.

Q.8 What is a Scanner class? Why is it used in java? Write a program to display the sum of all the odd values between a specific range using Scanner class.



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- Question Paper is divided into **Three Parts-A, B & C**
- **Part A** is compulsory.
- **Part B** contains **SIX** question out which **FOUR** are to be Answered
- **Part C** Contains **SIX** question out of which **THREE** are to be Answered

PART A

Q1) Multiple Choice Questions

(10x1=10)

- a) What is Software?
- i. Set of computer programs, procedures and possibly associated document concerned with the operation of data processing.
 - ii. A set of compiler instructions
 - iii. A mathematical formula
 - iv. None of above
- b) The spiral model has two dimensions namely _____ and _____
- i. diagonal, angular
 - ii. Radial, perpendicular
 - iii. Radial, angula
 - iv. diagonal, perpendicular
- c) Identify the disadvantage of Spiral Model.
- i. doesn't work well for smaller projects
 - ii. high amount of risk analysis
 - iii. strong approval and documentation control
 - iv. additional Functionality can be added at a later date
- d) Choose an internal software quality from given below:
- i. Scalability
 - ii. Usability
 - iii. Reusability
 - iv. Reliability
- e) If requirements are easily understandable and defined then which model is best suited?
- i. Spiral model
 - ii. Waterfall model
 - iii. Prototyping model
 - iv. None of the above
- f) The term module in the design phase refers to ?
- i. Functions
 - ii. Procedures
 - iii. Sub programs
 - iv. All of the above
- g) Which model is popular for students small projects ?

- i. Waterfall Model
 - ii. Spiral Model
 - iii. Quick and Fix model
 - iv. Prototyping Model
- h) Which is not a software life cycle model?
- i. Spiral Model
 - ii. Waterfall Model
 - iii. Prototyping Model
 - iv. Capability maturity Model
- i) SRS stands for?
- i. Software requirement specification
 - ii. Software requirement solution
 - iii. System requirement specification
 - iv. None of Above
- j) Which of the following is a tool in design phase?
- i. Abstraction
 - ii. Refinement
 - iii. Information Hiding
 - iv. All of Above

Q2) Very Short Types Question:

(5x2=10)

- i. Define Software Engineering.
- ii. Who is called as the Stakeholder?
- iii. What is the role of project manager?
- iv. What do you mean by task set in spiral Model?
- v. What is the principle of prototype model?

PART B

Q3) Answer any Four Question

(4x5=20)

- i. What are advantages and disadvantages of Black Box Testing?
- ii. What is the difference between Incremental Model and Spiral Model?
- iii. What do you understand by static testing?
- iv. What are the various software quality factors?
- v. Explain the Software Requirement Specification (SRS) used in SDLC.
- vi. Write software maintenance processes.

PART C

Answer any Three Question

(3x10=30)

Q4) Explain COCOMO model in detail.

Q5) What is Requirements Engineering (RE)? What are the meaning and needs of Requirements Engineering (RE)?

Q6) What is the Box approach for testing?

Q7) What are various factors associated with cost estimation of a project?

Q8) Name the various life cycle models .Explain with the diagram.

Q9) Explain the Waterfall model in detail.