



**ARKAJAIN**  
**University**  
Jharkhand

**5<sup>th</sup> Semester Examination –2021-22**

**Subject : SOFTWARE ENGINEERING**  
**Course : POLY (CSE)**  
**Full Marks : 70**

**Roll No : .....**  
**Time : 3 Hours.**

**Instructions to the Candidates:**

- Read the question paper very carefully.
- 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 containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will comes under Unfair Means and will Result in the Cancellation of the Papers.

**PART A**

**MULTIPLE CHOICE QUESTIONS**

**(12x1=12)**

1. SDLC stands for
  - a) Software Development Life Cycle
  - b) System Development Life cycle
  - c) Software Design Life Cycle
  - d) System Design Life Cycle
2. What assess the risk and your plans for risk mitigation and revise these when you learn more about the risk?
  - a) Risk monitoring
  - b) Risk planning
  - c) Risk analysis
  - d) Risk identification
3. Which of these software engineering activities are not a part of software processes?
  - a) Software dependence
  - b) Software development
  - c) Software validation
  - d) Software specification
4. Which of these is incorrect?
  - a) Software engineering belongs to Computer science
  - b) Software engineering is a part of more general form of System Engineering
  - c) Computer science belongs to Software engineering
  - d) Software engineering is concerned with the practicalities of developing and delivering useful software
5. Which is not one of the types of prototype of Prototyping Model?
  - a) Horizontal Prototype
  - b) Vertical Prototype
  - c) Diagonal Prototype
  - d) Domain Prototype

6. What is the major drawback of using RAD Model?
  - a) Highly specialized & skilled developers/designers are required
  - b) Increases reusability of components
  - c) Encourages customer/client feedback
  - d) Increases reusability of components, highly specialized & skilled developers/designers are required.
7. In Design phase, which is the primary area of concern?
  - a) Architecture
  - b) Data
  - c) Interface
  - d) All of the mentioned.
8. The level at which the software uses scarce resources is \_\_\_\_\_.
  - a) Reliability
  - b) Efficiency
  - c) Portability
  - d) All of the above.
9. Which of the following costs is not part of the total effort cost?
  - a) Costs of networking and communications
  - b) Costs of providing heating and lighting office space
  - c) Costs of lunch time food
  - d) Costs of support staff
10. The COCOMO model takes into account different approaches to software development, reuse, etc.
  - a) True
  - b) False
11. What all has to be identified as per risk identification?
  - a) Threats
  - b) Vulnerabilities
  - c) Consequences
  - d) All of the mentioned
12. RAD stands for
  - a) Relative Application Development
  - b) Rapid Application Development
  - c) Rapid Application Document
  - d) None of the mentioned.

### PART B

**ANSWER ANY FOUR OUT OF SIX**

(4x7=28)

1. Define Software Engineering. What are the various software quality factors?
2. Write short note on black box testing. What is White-box and Black-box Testing?
3. What is testing? What do you understand by static testing?
4. What is the difference between Incremental Model and Spiral Model?
5. Define Quality. What is software requirement specification?
6. Explain planning model?

### PART C

**ANSWER ANY TWO OUT OF FOUR**

(2x15=30)

1. What is Requirements Engineering (RE)? What are the meaning and needs of Requirements Engineering (RE)
2. Name the various life cycle models. Explain with the diagram.
3. What is the Box approach for testing?
4. What is the difference between Software Verification and Validation



8. \_\_\_\_\_ is a process which verifies the identity of a user who wants to access the system.
- a. Authentication      b. Non-repudiation      c. Integrity      d. None of the above
9. Communication between end systems is encrypted using a key, often known as
- a. Temporary key      b. Section key      c. Line key      d. Session key
10. Which algorithm provides the private key and its corresponding public key?
- a. Key generation algorithm      b. Signature verifying algorithm  
c. Signing algorithm      d. None of the above
11. The DES Algorithm Cipher System consists of \_\_\_\_\_ rounds (iterations) each with a round Key.
- a. 12      b. 18      c. 9      d. 16
12. How many algorithms digital signature consists of?
- a. 2      b. 3      c. 4      d. 5

### PART B

#### ANSWER ANY FOUR OUT OF SIX

(4x7=28)

1. How many rounds are there in DES? Explain.
2. How many types of network security attacks are there?
3. Explain with Example-Mono alphabetic cipher.
4. Explain Additive cipher with example.
5. Write the advantages and disadvantages of symmetric key cryptography
6. Explain IPSEC.

### PART C

#### ANSWER ANY TWO OUT OF FOUR

(2x15=30)

1. What is Firewall? Explain Packet-Filter firewall with neat diagram
2. Explain Digital Signature in details with neat diagram.
3. Explain the architecture of ELECTRONIC –MAIL.
4. Draw a neat diagram of DES Procedure and mention the steps



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**PART A**

**MULTIPLE CHOICE QUESTIONS**

(12x1=12)

1. Which of the following has the highest order in terms of hierarchy?  
a. Byte                      b. Double                      c. Boolean                      d. Int
2. Which of these have highest precedence?  
a. ++                      b. ( )                      c. \*                      d. <<
3. public class While  
{  
  public void loop ()  
  {  
    int x= 0;  
    while ( 1 ) /\* Line 6 \*/  
    {  
      System.out.print ("x plus one is " + (x + 1)); /\* Line 8 \*/  
    }  
  }  
}

Which statement is true?

  - a. There is a syntax error on line 1.
  - b. There is a syntax error on lines 1, 6, and 8
  - b. There is a syntax error on line 1 and 6
  - d. There is a syntax error on line 6.

4. Which of the following has the lowest order in terms of hierarchy?  
a. Byte                      b. int                      c. long                      d. float
5. In Java, \_\_\_\_\_ can only test for equality, whereas \_\_\_\_\_ can evaluate any type of Boolean expression.  
a. switch, if                      b. if, switch                      c. if, break                      d. continue, if

6. State true or false for Java Program.
- All class variables are instance variables
  - All protected methods are friendly methods
- a. i-false, ii-false      b. i-false, ii-true      c. i-true, ii-false      d. i-true, ii-true
7. State true or false for Java Program.
- Data members of an interface are by default final
  - An abstract class has implementations of all methods defined inside it.
- a. i-false, ii-false      b. i-false, ii-true      c. i-true, ii-false      d. i-true, ii-true
8. Which of the following statements about abstract methods/classes in Java is true?
- An abstract class cannot be instantiated.
  - Constructors can be abstract
  - A subclass of an abstract class must define the abstract methods.
  - Static methods may be declared abstract.
9. What is the file extension of a compiled java program?
- a. .java      b. byte      c. class      d. .txt
10. Method overloading is one of the ways that Java supports \_\_\_\_\_
- a. Encapsulation      b. Class      c. Inheritance      d. Polymorphism
11. What is the default return type of main ().
- a. Void      b. Int      c. Float      d. String
12. In java control statements break, continue, return, try-catch-finally and assert belongs to :
- Selection statement
  - Transfer statement
  - Loop statement
  - Shift statement

### PART B

#### ANSWER ANY FOUR OUT OF SIX

(4x7=28)

- What is fall through? Explain source code, Byte code, and object code.
- When and where do we use the keyword extends? Name any 3 non primitive data types.
- Why class is known as object factory? State any 4 difference between while and do-while.
- What is a package? Write a program to check a given string is palindrome or not without using library function.
- What is the use of static keyword? Write a program to show the odd numbers from 20 to 1 using does-while loop.
- Explain how applet is different from an application? Write a snippet showing an infinite loop.

### PART C

#### ANSWER ANY TWO OUT OF FOUR

(2x15=30)

- Write the storage capacity (in Bytes) of int, float, char, and double data types. Write a program to perform Binary Search on n inputs.
- Differentiate between function overloading and overriding. Write a program to display the use of function: substring ().
- What is a data type? Explain in details about Wrapper class. Also explain the terms Auto boxing and Unboxing.
- What is type casting? Write a program to show explicit type casting. Write short notes on: try, catch, and throw, throws, finally.