

**M J College, BHILAI**  
**Half yearly Examination Session-2019-20**  
**B. C. A. (Part III) EXAMINATION**  
**PROGRAMMING IN C++**

Time : **3 Hours**

Maximum marks: **50**

- 1) What is the difference between variable and constant? Explain with example.
  - 2) What are escape sequences? What is their role in C++?
  - 3) What is unary and binary operator overloading? Explain.?
  - 4) Explain any three string function by taking suitable examples.
  - 5) What are various data types available in C++?
  - 6) What are streams in C++? Explain various types of streams.
  - 7) What are public and private access specifies? Explain difference between them.
  - 8) What do you mean by error? Give various types of error a C++ program can have.
  - 9) What is object-oriented programming? Discuss the salient features of object oriented programming with examples from C++.
  - 10) Write a note on the following :
    - a) Array of Structure.
    - b) Break and continue statement.
- or
- 11) What are the main characteristics of an object oriented programming? Compare them with the structured programming?
  - 12) What is a class? Give an advantage of having classes in a program. How does it accomplish data hiding?

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- 1) What are function prototypes?
- 2) What is the significance of access specifier in a class?
- 3) What are some advantages/disadvantages of using friend functions?
- 4) What are the main characteristics of an object oriented programming? Compare them with the structured programming?
- 5) What is a class? Give an advantage of having classes in a program. How does it accomplish data hiding?
- 6) What is multiple inheritance? How it is realized in C++? Give suitable examples.
- 7) How the end of file can be detected?
- 8) What do you mean by error? Give various types of error a C++ program can have.
- 9) What is object-oriented programming? Discuss the salient features of object oriented programming with examples from C++.
- 10) Define and distinguish between operators overloading and function overloading. How unary and binary operators are overloaded?
- 11) Write a note on the following :
  - a) Array of Structure.
  - b) Break and continue statement.

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- 1) Define operator overloading.
- 2) Define virtual function. Define Static function
- 3) Define function overloading.
- 4) Differentiate between call by value and call by reference.
- 5) Name two objects of stream class associated with the standard device for error messages
- 6) What are manipulators?
- 7) Write about sequential input output operations'
- 8) How is a static variable different from a static function.
- 9) What are the advantages/disadvantages of using friend functions?
- 10) Explain the essential characteristics that an object oriented program should support?

OR

- 11) Explain tire user defined data types. How are they used to declare built in data types?

- 12) What are constructors? Flow to declare a constructor? List the rules while writing a constructor function. Explain with help of an example.

OR

- 13) Define inheritance. What is the inheritance mechanism in C++? What should be the structure of a clas5 when it has to be base for other classes?

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- 1) What is the difference between variable and constant? Explain with example.
- 2) Define pre processor directives. Why are they required in C++ Programs?
- 3) What is unary and binary operator overloading? Explain.
- 4) What are various pitfall of operator overloading?
- 5) Explain any three string function by taking suitable examples.
- 6) What are various data types available in C++?
- 7) What are streams in C++? Explain various types of streams.
- 8) What are public and private access specifier? Explain difference between them.
- 9) What do you mean by error? Give various types of error a C++ program can have.
- 10) What is object-oriented programming? Discuss the salient features of object oriented programming with examples from C++.

OR

- 11) Define and distinguish between operators overloading and function overloading. How unary and binary operators are overloaded?

OR

- 12) Write a note on the following :
  - a) Array of Structure.
  - b) Break and continue statement.

**M J College, BHILAI**  
**Half yearly Examination Session-2015-16**  
**B. C. A. (Part III) EXAMINATION**  
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**Time : 3 Hours**

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- 1) Write about sequential input output operations?
- 2) How is a static variable different from a static function.
- 3) What are the advantages/disadvantages of using friend functions?
- 4) Explain the essential characteristics that an object oriented program should support?
- 5) Explain tire user defined data types. How are they used to declare built in data types?
- 6) What are constructors? Flow to declare a constructor? List the rules while writing a constructor function. Explain with help of an example.
- 7) Define inheritance. What is the inheritance mechanism in C++? What should be the structure of a class when it has to be base for other classes?
- 8) Explain the differences between passing arguments "by reference" and "by addresses" to functions.
- 9) What is meant by abstract base class? Explain.

Or

- 10) What is redirection? Explain. Why there is a need of Object Oriented Language? Explain encapsulation, polymorphism and inheritance.
- 11) What do you mean by header file?
- 12) What is the difference between variable and constant? Explain with example.

or

- 13) Define pre processor directives. Why are they required in C++ Programs?

**M J College, BHILAI**  
**Half yearly Examination Session-2019-20**  
**B. C. A. (Part III) EXAMINATION**  
**COMPUTER SYSTEM ARCHITECTURE**

**Time : 3 Hours**

**Maximum marks: 50**

- 1) What is meant by operation code?.
- 2) What are Computer registers? List various types of computer registers.
- 3) Define Register reference instruction.
- 4) What is instruction cycle?
- 5) List the different addressing modes.
- 6) What is Cache memory? Explain.
- 7) Define the term computer organization and computer architecture.
- 8) What is the role of I/O ports?
- 9) How memory mapping is carried out?
- 10) What is timing diagram? Explain with an example
- 11) What are the different types of computer registers? Discuss their functions.
- 12) What is control unit? Explain its functions. Explain how micro Programmed control unit is different from hardwired control unit.
- 13) How transfer of information between CPU and I/O devices is carried out? Explain..
- 14) What is microprocessor? Explain the architecture of 8-bit microprocessor.
- 15) Write a note on :
  - (a) Auxiliary memory
  - (b) Associative memory
  - (c) Memory mapping

**OR**

16) Write short notes on the following :

- (a) Instruction Cycle (b) I/O Architecture

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**COMPUTER SYSTEM ARCHITECTURE**

**Time : 3 Hours**

**Maximum marks: 50**

- 1) What is register? List various register with their uses.
  - 2) What is instruction format? Explain with example.
  - 3) What is memory mapping? Explain.
  - 4) What is microinstruction? Explain with example.
  - 5) Explain the role of register transfer language in computer architecture.
  - 6) What is instruction cycle? Explain.
  - 7) Define interrupt. What are its types?
  
  - 8) Explain the following with reference to basic computer organization having 4096 x 16 memory.
    - a. Common bus system with basic registers.
    - b. Timing and control unit
  - 9) . What is a memory reference instruction ? explain the following instructions giving their
  - 10) register transfer description:
    - a. LDA and STA
    - b. BUN and BSA
    - c. ADD and ISZ
  
  - 11) Describe the following in 8085 microprocessor giving examples:-
    - a. Program Status Word (PSW)
    - b. Instruction Set
    - c. Addressing modes
    - d. Bus Structure
  
  - 12) Compare and contrast:
    - a. Implicit addressing mode and Immediate addressing mode
    - b. Hardwired control and Micro program control
    - c. Unified cache and Split cache organization
  - 13) Explain the difference Static RAM and Dynamic RAM.
  - 14) What is timing diagram? Explain with an example.
  - 15) What is control unit? Explain its functions. Explain how micro Programmed control unit is different from hardwired control unit.
- OR
- 16) How transfer of information between CPU and I/O devices is carried out? Explain

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**COMPUTER SYSTEM ARCHITECTURE**

**Time : 3 Hours**

**Maximum marks: 50**

- 1) What is microprocessor? Explain the architecture of 8 bit microprocessor?
- 2) What is memory hierarchy? Explain different type of computer memories with their advantages and disadvantages.
- 3) What is an Instruction code? Explain.
- 4) What are Computer registers? List various types of computer registers.
- 5) Define Memory reference instruction.
- 6) What is an Instruction format? Explain with an example.
- 7) What is VO port? Explain its use.
- 8) What is Cache memory? Explain.
- 9) Define the term computer organization and computer architecture.
- 10) What is stack? Give one example....
- 11) Explain the difference Static RAM and Dynamic RAM.
- 12) Describe the following in 8085 microprocessor giving examples:-
  - a. Program Status Word (PSW)
  - b. Instruction Set
  - c. Addressing modes
  - d. Bus Structure
  
- 13) Compare and contrast:
  - a. Implicit addressing mode and Immediate addressing mode
  - b. Hardwired control and Micro program control
- 14) c. Unified cache and Split cache organization      d. Microprocessor and Multiprocessor
- 15) What are the different types of computer registers? Discuss their functions.  
OR
- 16) What is control unit? Explain its functions. Explain how micro Programmed control unit is different from hardwired control unit.



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  - 4) What is microinstruction? Explain with example.
  - 5) Explain the role of register transfer language in computer architecture.
  - 6) What is instruction cycle? Explain.
  - 7) Define interrupt. What are its types?
  - 8) Explain the difference between SRAM and DRAM.
  - 9) Define micro controller? What is its use?
  - 10) What are wilkies controls? Draw neat and clean diagram for it.
  - 11) Explain the following with reference to basic computer organization having 4096 x 16 memory.
    - a. Common bus system with basic registers.
    - b. Timing and control unit
  - 12) . What is a memory reference instruction ? explain the following instructions giving their register transfer description:
    - a. LDA and STA
    - b. BUN and BSA
    - c. ADD and ISZ
  - 14) Explain how bulk transfer of information is made giving block diagram of 'DMA controller' and DMA transfer' in a computer system.
  - 15) What is timing diagram? Explain with an example
- OR
- 16) What are the different types of computer registers? Discuss their functions.

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- 14) Explain the difference Static RAM and Dynamic RAM.
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  - b. Instruction Set
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  - d. Bus Structure

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**B. C. A. (Part III) EXAMINATION**  
**JAVA PROGRAMMING**

**Time : 3 Hours**

**Maximum marks: 50**

- 1) How does JAVA achieve platform independence?
- 2) Write the syntax of prefix and postfix increment operator and write the difference between them.
- 3) What are the commands used to compile and run the JAVA Programs.
- 4) Determine the value of each of the following logical expressions if  $a = 5$ ,  $b = 10$  and  $c = -6$   
**a > b && a < c   c) a == c || b > a   d) b > 15 && c < 0**
- 5) Explain any three string functions used in JAVA.
- 6) Explain the difference between do-while statement and while statement.
- 7) Define an abstract class.
- 8) What is the difference between the String and StringBuffer classes?
- 9) How does Java programming language support robustness?
- 10) What is the Java virtual machine (JVM)?
- 11) Explain characteristics of Object Oriented Programming.  
OR
- 12) Explain Logical (Boolean) operators in JAVA with example.
- 13) Write a program to find average of all the numbers stored in an array.
- 14) What is 'this' and what are different uses of it? Explain with example.  
OR
- 15) Compare and contrast abstract class and interface.

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Max Marks: 50

Time: 3:00hrs

Attempt any two questions from each section. Each question carries equal marks.

**Question no-1 (a)** WAP to take input of principal, rate & time and calculate simple interest & compound interest.

**Q2.** WAP which will count all vowels, consonants, digits, special characters and blank spaces in a sentences.

(c) Explain Visual basics IDE.

**Question no -2(a)** Draw user interface for Student Information.

(b) Explain mouse press event and double click event

(c) Explain if-then, select case, looping statements.

**Question no-3 (a)** Explain Active X Control in detail.

(b) Describe Building Blocks of Visual basics.

(c) What is common dialog control? Explain all methods and properties.

**Question no-4 (a)** Explain multiple Document interface.

(b) Write note on Coordinate Systems.

(c) Describe Image handling in Visual Basics.

**Question no-5(a)** Explain Data bound controls.

(b) Write techniques use for storing and retrieval of information.

(c) Write note on Database programming With Visual Basics.

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**JAVA PROGRAMMING**

**Time : 3 Hours**

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1. Explain, with suitable examples, the advantage of object oriented language over structured programming language.
1. Differentiate between method overloading and method overriding with an example.
2. What is the use of class path ? How it helps in the execution of a java program ?
3. Explain the advantages and disadvantages of garbage collection.
4. What is the use of Interface ? How can you define and implement it using a program ?
5. Differentiate checked and unchecked exception.
6. Write the process of implementing cookies. What is the role of session in handling a cookie.
7. What is Inheritance ? Explain its advantages. Also explain with example
8. how a subclass is derived from a super class in Java. Compare and contrast object-based programming language and object –oriented programming language.
9. programming language and object –oriented programming language.
10. What is inheritance ? Differentiate between multilevel and multiple inheritance using an example.

OR

11. Write a program in Java to calculate area and circumference of a circle. Show the use of 'final' keyword in your program.

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**Time : 3 Hours**

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1. programming language and object –oriented programming language.
2. What is inheritance ? Differentiate between multilevel and multiple inheritance using an example.
3. Write a program in Java to calculate area and circumference of a circle. Show the use of 'final' keyword in your program.
4. Write a program in Java for creating thread by inheriting the thread class. example ?
5. Write a program to find the length of a given string. Replace all the occurrences of a given character by a substitute character and print the resultant s
6. Explain the advantages and disadvantages of garbage collection.
7. What is the use of Interface ? How can you define and implement it using a program ?
8. Differentiate checked and unchecked exception.
9. Write the process of implementing cookies. What is the role of session in handling a cookie.
10. What is Inheritance ? Explain its advantages. Also explain with example
11. how a subclass is derived from a super class in Java. Compare and contrast object-based programming language and object –oriented programming language.

OR

12. What is inheritance ? Differentiate between multilevel and multiple inheritance using an example.

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**JAVA PROGRAMMING**

**Time : 3 Hours**

**Maximum marks: 50**

1. Write a program in Java for creating thread by inheriting the thread class.
2. Explain characteristics of Object Oriented Programming.
3. Explain Logical (Boolean) operators in JAVA with example.
4. Write a program to find average of all the numbers stored in an array.
5. What is 'this' and what are different uses of it? Explain with example.
6. Compare and contrast abstract class and interface.
7. How does JAVA achieve platform independence?
8. Write the syntax of prefix and postfix increment operator and write the difference between them.
9. What are the commands used to compile and run the JAVA Programs.

OR

10. What is the use of class path ? How it helps in the execution of a java program ?
11. Explain the advantages and disadvantages of garbage collection.

OR

12. What is the use of Interface ? How can you define and implement it using a program ?

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**OPERATING SYSTEM**

**Time : 3 Hours**

**Maximum marks: 50**

1. What are the two main functions of an operating system?
2. What is the principal disadvantage of too much multiprogramming?
3. What is starvation? How it is removed in priority scheduling?
4. Differentiate user level threads from kernel level threads.
5. Which is the best condition to prevent from a deadlock?
6. What is the difference between local page replacement and global page replacement?
7. Differentiate record, file and directory?
8. Consider the following page reference string:  
7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,7,0,1.  
How many page faults would occur for the following replacement algorithms assuming three frames? Remember that all frames are initially empty.
  - (a)LRU replacement
  - (b) FIFO replacement
  - (c) Optimal replacement
9. Explain the different operations performed on files.  
OR
10. What is the concept of deadlock? How to prevent deadlock. Illustrate with the help of examples?
11. What is demand paging? Discuss its advantages and disadvantage.



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1. What is multiprocessing?
2. Describe two different techniques for handling the communications between a processor and devices.
3. What is the essential difference between a block special file and a character special file?
4. What is device independence?
5. What is the difference between a physical address and a virtual address?
6. What is the process of segmentation?
7. What do you mean by thrashing?
8. What are the two main functions of an operating system?
9. What is the principal disadvantage of too much multiprogramming?
10. What is starvation? How it is removed in priority scheduling?
11. Differentiate user level threads from kernel level threads.?

OR

12. What is binary semaphore and why it is used?
13. Which is the best condition to prevent from a deadlock?

OR

14. Define the concept of dynamic loading.
15. What is demand paging?

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How many page faults would occur for the following replacement algorithms assuming three frames? Remember that all frames are initially empty.

- (a) LRU replacement
  - (b) FIFO replacement
  - (c) Optimal replacement
2. Explain the different operations performed on files.
3. Explain Direct Memory Access and steps in DMA transfer.
4. Compare parallel processor systems with distributed systems.
5. What is operating system? Explain different functions of operating system.
6. Consider the following set of processes with the length of CPU burst time give in milliseconds:

<u>Process</u>	<u>Burst Time</u>	<u>Priority</u>
P1	10	3
P2	29	1
P3	3	3
P4	7	4
P5	12	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at time 0.

- i. What is the turnaround time of each process for using FCFS, SJF, a non preemptive priority (a smaller priority number implies a higher priority) and RR (quantum=10) scheduling.
  - ii. What is the waiting time of each process for each of the scheduling algorithm in part a.
7. What is meant by spooling? How does caching improve system performance?
8. What is direct memory access? How DMA improves system performance and cycle stealing.
9. What is an interrupt? What does it mean for an interrupt to be synchronous?
10. What is inter-process communication? What is the major drawback of using signals for IPC  
OR
11. What is mutual exclusion? Discuss Dekker's algorithm for mutual exclusion.
12. What is processor scheduling? Discuss the shortest process first scheduling with the help of suitable examples.  
OR
13. What is the concept of deadlock? How to prevent deadlock. Illustrate with the help of examples?  
OR
14. What is the process segmentation?  
OR
15. What are the two main functions of an operating system?

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6. Differentiate user level threads from kernel level threads.
7. What is binary semaphore and why it is used?
8. Which is the best condition to prevent from a deadlock?
9. Define the concept of dynamic loading.
10. What is compaction and why it is used?
11. What is Belady's anomaly problem?
12. Consider the following page reference string:  
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How many page faults would occur for the following replacement algorithms assuming three frames? Remember that all frames are initially empty.
  - (a) LRU replacement
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13. Explain the different operations performed on files.  
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14. What is the process segmentation?
15. What are the two main functions of an operating system?

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2. Compare parallel processor systems with distributed systems.
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The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at time 0.

- (a) What is the turnaround time of each process for using FCFS, SJF, a non preemptive priority (a smaller priority number implies a higher priority) and RR (quantum=10) scheduling.
  - (b) What is the waiting time of each process for each of the scheduling algorithm in part a.
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  9. Define the concept of dynamic loading.
  10. What is mutual exclusion? Discuss Dekker's algorithm for mutual exclusion.
- OR
11. What is processor scheduling? Discuss the shortest process first scheduling with the help of suitable examples.

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**B. C. A. (Part III) EXAMINATION**  
**Software Engineering**

**Time : 3 Hours**

**Maximum marks: 50**

1. What are the objectives of software planning?
2. What are software requirements analysis principles?
3. Explain the various characteristics of software.
4. Define the term software and how it is different from hardware.?
5. Write about the advantages of spiral model?. What is Data Flow Diagram? Explain
6. Discuss the various steps involved in requirement analysis of software process
7. Discuss the software life cycle in detail
8. Which are the various phases in software process models? Explain them.
9. What do you mean by software testing? Explain the various software testing methodologies.

OR

10. What is the difference between program and software?
11. What are the characteristics of the software?

OR

12. Explain the COCOMO model with example.

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**Software Engineering**

**Time : 3 Hours**

**Maximum marks: 50**

- 1) What are various attributes of Software?
- 2) What is the difference between integration and module testing?
- 3) What are software requirements analysis principles?
- 4) Explain the various characteristics of software.
- 5) Define the term software and how it is different from hardware.
- 6) Differentiate between verification and validation.
- 7) Write about the advantages of spiral model.
- 8) Discuss the various steps involved in requirement analysis of software process

OR

- 9) Discuss the software life cycle in detail
- 10) What is Data Flow Diagram? Explain the notations used

OR

- 11) Which are the various phases in software process models? Explain them.

- 12) Explain the COCOMO model with example

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**Software Engineering**

**Time : 3 Hours**

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- 1) What is Data Flow Diagram? Explain the notations used
- 2) Which are the various phases in software process models? Explain them.
- 3) Explain the various cost estimation techniques. How do you decide which is the best.
- 4) What do you mean by software testing? Explain the various software testing methodologies.
- 5) What is the difference between program and software?
- 6) What are the characteristics of the software?
- 7) What are the objectives of Requirement Analysis?
- 8) Define fourth Generation Techniques in Software?
- 9) What are the steps followed in testing?

OR

- 10) Define software prototyping.
- 11) Write short note on a black box testing.

OR

- 12) What is cost estimation models? Define.

**M J College, BHILAI**  
**Half yearly Examination Session-2016-17**  
**B. C. A. (Part III) EXAMINATION**  
**Software Engineering**

**Time : 3 Hours**

**Maximum marks: 50**

1. What are the major differences between Top down and Bottom up approach for the design of a system. Explain with example.
2. What are the different type of tests required for a system. How test data is constructed for those system. Explain with example.
3. Explain the COCOMO model with example.
4. What are the steps in the design of a system? Explain with an example.
5. What is unit testing?
6. What are various attributes of Software?
7. What is the difference between integration and module testing?

OR

8. Why S/W does not wear out? What are the training needs for the system implementation?
9. Explain briefly whether S/W is developed or engineered.?

OR

10. Write short note on a black box testing?
11. What is cost estimation models? Define.
12. Define system testing? Explain Object oriented concepts?



**M J College, BHILAI**  
**Half yearly Examination Session-2015-16**  
**B. C. A. (Part III) EXAMINATION**  
**Software Engineering**

**Time : 3 Hours**

**Maximum marks: 50**

1. What do you mean by software testing? Explain the various software testing methodologies.
2. What is the difference between program and software?
3. What are the characteristics of the software?
4. What are the steps followed in testing?
5. Define software prototyping. Write short note on a black box testing.
6. What is cost estimation models? Define.?Define system testing?
7. Explain Object oriented concepts? Explain in detail about the life cycle process.
8. What are the Basic Principle of Software Testing? Explain in detail.

OR

9. Explain the Spiral Model for the software design. How feedback mechanism work in this model.
10. Discuss the various steps involved in requirement analysis of software process
11. What is Data Flow Diagram? Explain the notations used?

OR

12. Which are the various phases in software process models? Explain them.