

Question

kindly use this questions to revised the topics we have treated so far. It will come in batches, this is the first batch The rest will be posted as times goes on. kindly attempt it and submit online. CSC 206: COMPUTER PROGRAMMING II REVISED QUESTIONS 2019/2020

1. Define the following:
i. Programming
ii. A program
iii. Programming languages
2. There are three types of programming languages, describe them.
3. There are some conventional features which a programming language must possess, what are they?
4. Write short note on six programming methodologies.
5. You are given a task as an IT consultant to write a proposal on five major stages that are involved in developing an efficient program for Johnson LTD.
6. As the Head of programming development team of Otito IT Solutions, kindly advice other team members' considerations in writing good programs.
7. What is structured programming?
8. Highlight and discuss fundamental objectives of structured programming.
9. With a given example, briefly write short note on Logical pattern that characterize Structured Programming.
10. As a computer analyst, you are given a task to solve a Time Table scheduling problem in College of Science, Afe Babalola University. What is the method you are to employ in solving the task and what are the necessary properties required of the steps to take to resolve the issue?
11. Write an algorithm using a flowchart to find the volume of a sphere, given the radius as 23.
12. Write an algorithm using Pseudocode to find the radius of a cone, if the volume is given as 200cm³ and height as 18.
13. Differentiates between object oriented languages and structured oriented languages.
14. // program to find the circumference of a circle. #include #define pi 3.142
int main () { const float rad = 7.5; float cir; cir = 2 * pi * rad; printf("the value of circumference of a circle is %d", cir); return 0; } Describe each line in the above program.

Solutions

1. (i) Programming is the process of writing programs.
(ii) A program is a set of codes that instructs the computer to carry out some processes
(iii) Programming languages are languages through which we can instruct the computer to carry out some processes or task.
2. **Machine language:** Machine language or machine code is the native language directly understood by the computer's central processing unit or CPU.
Assembly language: It is a language that consists of some symbolic codes, which are easier to remember than machine codes.
High level language: High Level Languages are user-friendly languages which are similar to English with vocabulary of words and symbols
3. It must have syntactic rules for forming statements.
It must have a vocabulary that consists of letters of the alphabet.
It must have a language structure, which consists of keywords, expressions and statements.
It may require a translator before it can be understood by a computer.
Programming languages are written and processed by the computer for the purpose of communicating data between the human being and the computer.
4. **Procedural Programming:** A procedural program is a series of steps, each of which performs a calculation, retrieves input, or produces output.

Object-Oriented (OO) Programming: *an object oriented program* is a collection of objects that interact with each other by passing messages that transform their state.

Functional Programming: this is a collection of mathematical functions, each with an input (domain) and a result (range).

Logic (Declarative) Programming: logic program is a collection of logical declarations about what outcome a function should accomplish rather than how that outcome should be accomplished.

Event Driven Programming: An event driven program is a continuous loop that responds to events that are generated in an unpredictable order.

Concurrent Programming: A concurrent program is a collection of cooperating processes, sharing information with each other from time to time but generally operating asynchronously.

5. Analyze the problem
Design the problem
Coding
Testing and debugging
Documentation
6. Naming Conventions
File Naming and Organization
Formatting and Indentation
Comments and Documentation
Classes
Functions
Use of STL(standard template library)
Minimizing bugs by testing.
7. Structured programming is a programming paradigm aimed at improving the clarity, quality and development time of computer program by making extensive use of subroutines, block structures, for and while loops.
8. **To increase programmers' productivity:**
To increase program clarity by reducing complexity
To reduce program testing time
To reduce program maintenance time and effort
9. Sequence: sequence refers to an ordered execution of statements. It has one entry and exit points.
Selection: it uses conditions and one of a number of statements is executed depending on the state of the program. This is usually expressed with keywords such as if ...then...else...endif, switch, or case.
Repetition: in repetition, a statement is executed until the program reaches a certain state, or operations have been applied to every element of a collection. This is usually expressed with keywords such as while, repeat, for or do...until.

10. Method of an algorithm

Properties

Input: an algorithm has input values from a specified set.

Output: from each set of input values an algorithm produces output values from a set of specified set.

Definiteness: the steps of an algorithm must be defined precisely.

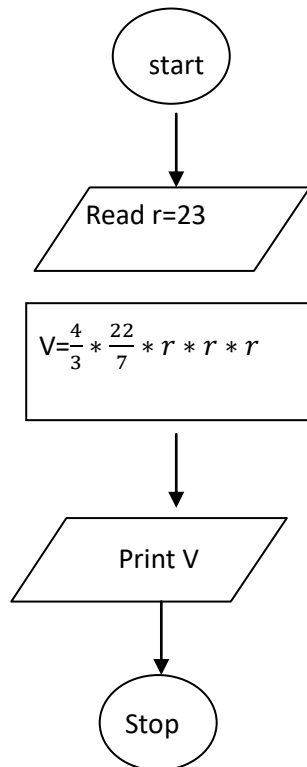
Correctness: an algorithm should produce the correct output values for each set of input values.

Finiteness: an algorithm should produce the desired output after a finite number of steps for any input in the set.

Effectiveness: it must be possible to perform each step of an algorithm exactly and in a finite amount of time.

Generality: the procedure should be applicable for all problems of the desired form, not just for a particular set of input values.

11.



12.

Start

Read the volume and height

Let $V = \frac{1}{3} \pi r^2 h$

Calculate Radius

Stop

13. Differentiates between object oriented languages and structured oriented languages.

Object oriented languages	Structured oriented languages
Data is hidden and cannot be accessed by external functions	Data moves freely around the systems from one function to another
Prime focus is in the data that is being operated and not on the functions or procedures	Prime focus is on functions and procedures that operate on the data
In this type of language, programs are divided into objects	In this type of language, large programs are divided into small programs called functions
C++, JAVA and C# (C sharp)	Examples: C, Pascal, ALGOL and Modula-2

14. #include <stdio.h> //link section

```
#define pi 3.142 // definition section
```

```
int main () { //main function
```

```
const float rad = 7.5;
```

```
float cir;
```

```
cir = 2 * pi * rad;
```

```
printf("the value of circumference of a circle is %d", cir);
```

```
return 0; }
```