

Aug 2004

B3.

- (b) During the program checking process, a program can be checked for errors even before the source code is executed. List three methods of program checking, and briefly describe each of them. [6]

[Any 3 of the following, 2 marks each (1 for identification, 1 for explanation)]

Dry Run- Desk execution of a piece of design code (Pseudocode), which simulates how a computer runs the code.

Structured Walkthrough- Formal discussion of design code by peer group, a process that identifies errors/improvement, not how to solve them.

Catalytic Check- Less formal session involving programmer and another colleague, colleague asks question and programmer must describe in detail how the program works and identify errors from there.

Independent Inspection- involving programmer and another colleague. Programmer passes the design to a colleague, who can use dry run or walkthrough to identify errors.

April 2003

B3. (b) List and briefly describe four possible methods that may be used by a programmer to check a program design. [8]

[1 for identification, 1 for explanation]

Dry Run- Desk execution of a piece of design code (Pseudocode), which simulates how a computer runs the code.

Structured Walkthrough- Formal discussion of design code by peer group, a process that identifies errors/improvement, not how to solve them.

Catalytic Check- Less formal session involving programmer and another colleague, colleague asks question and programmer must describe in detail how the program works and identify errors from there.

Independent Inspection- involving programmer and another colleague. Programmer passes the design to a colleague, who can use dry run or walkthrough to identify errors.

Dec 2002

B3. (a) Suppose that you are Senior Programmer on a project. A new colleague of yours is about to complete his first piece of program design for the project and has asked your advice on how he should ensure that his design meets the requirements and is not vague. Describe in detail four different methods of checking that he could use. (16 marks)

(For each of the following methods, 1 mark for identifying the method, and any 3 points of explanation, for 1 mark each. Max 4 marks per method.)

Dry Run (1 mark)

- **Columns for variables and conditions (1 mark)**
- **Initial values indicated on it (1 mark)**
- **Allows the tracing of the flow of logic (1 mark)**
- **Indicates any change of variable value (1 mark)**
- **Shows what the program is doing (1 mark)**

Walkthrough (1 mark)

- **Allows the author to expose the design to colleagues (1 mark)**
- **Allows the pooling of criticisms to enable improvements (1 mark)**
- **A short, but formal process (1 mark)**
- **Allows the author to describe WHY and HOW the program is designed (1 mark)**
- **Allows others to ask questions (1 mark)**

Independent Inspection (1 mark)

- **The author passes the work to a colleague (1 mark)**
- **The second person studies the work (1 mark)**
- **Checking others people work can help to identify problems more easily (1 mark)**
- **Ensures program/design is understandable to others (1 mark)**

Catalytic Checking (1 mark)

- **A less formal checking (Accept 'Informal') (1 mark)**
- **The programmer explains the work to a colleague (1 mark)**
- **Programmer must be able to explain in detail about his algorithms (1 mark)**
- **The second person can ask any questions (1 mark)**