

Test Bank

Problem Solving and Programming Concepts, 9th Ed.

Authors: Maureen Sprinkle and Jim Hubbard

Unit One: Introduction to Problem Solving and Programming

Chapter 1: General Problem-Solving Concepts

True or False:

1.1. A heuristic and an algorithmic solution require the same type of problem solving to develop a step by step solution to a problem.

Answer: F

1.2. Identifying the problem is the first step in problem solving.

Answer: T

1.3. Defining the knowledge base is part of understanding the problem.

Answer: T

1.4. The result of a problem is a set of step by step instructions.

Answer: F

1.5. All problems can be solved by writing a set of step by step instructions for a computer.

Answer: F

1.6 It is not important to evaluate a solution.

Answer: F

1.7 The more alternative solutions that are identified, the better chance you have of a good solution.

Answer: T

1.8 Any solution should be considered when solving a problem.

Answer: F

1.9 You can find a step-by-step solution for any problem as long as you understand the problem.

Answer: F

1.10 Problems that require a heuristic solution cannot be solved through a set of step by step instructions.

Answer: T

Multiple Choice:

1.11. Step 3 in problem solving is to identify alternative ways to solve the problem. This means:

- a. To define the knowledge base of all participants.
- b. To write a list of pros and cons for each solution.
- c. To identify as many solutions as possible to the problem.
- d. To identify a few solutions to the problem.

Answer: C

1.12. The last step in problem solving is to evaluate the solution. This means:

- a. To check if the knowledge base for errors.
- b. To check if the set of step by step instructions developed in step 5, list instructions that enable you to solve the problem, solve the problem identified in step 1.
- c. To check is the solution solves a problem.
- d. To test for understanding of the identified problem.

Answer: B

1.13. An algorithm is:

- a. A solution that can not be reached through a set of step by step instructions.
- b. The results of the problem.
- c. The set of step by step instructions to solve the problem.
- d. The knowledge base of a solution.

Answer: C

1.14. Step 4 is to select the best way to solve the problem. This means:

- a. To weed out unacceptable solutions.
- b. To specify pros and cons of each valid solution.
- c. Select one solution after weighing the pros and cons.
- d. All of the above.

Answer: D

1.15. A problem that requires a heuristic solution might be:

- a. Balancing your checkbook.
- b. Choosing stock on the stock market.
- c. A calculus problem.
- d. Baking a cake.

Answer: B

1.16 The solution to a problem is

- a. The set of step-by-step instructions to solve the problem.
- b. The program
- c. The results.
- d. All of the above.

Answer: A

1.17. After you have identified alternative solutions

- a. You are ready to evaluate the solution(s).
- b. You are ready to select the best solution.
- c. You are ready to write the algorithm.
- d. You are ready to identify the knowledge base.

Answer: B

1.18. To select the best solution, you should

- a. Identify and list the pros and cons of each alternative solution.
- b. Develop an algorithm for each solution.
- c. Develop the knowledge base for each solution.
- d. Identify the problem.

Answer: A

1.19. To create a set of instructions to make Otto walk in a figure other than a square, the following instruction(s) would need to be added to the instruction set:

- a. Turn 1 degree, turn is always right.
- b. Turn x degrees, where x is a given number of degrees in an angle, turn is always right.
- c. Turn x degrees, where x is a given number of degrees in an angle, turn is always left.
- d. Any of the above.

Answer: D

1.20. A set of step-by-step instructions is processed:

- a. In the order they are presented and processed.
- b. Can skip around to other instructions.
- c. Can return to a previously processed instruction.
- d. In random order.

Answer: A

1.21. The set of step-by-step instructions written for the solution to a problem must:

- a. Be within the knowledge base of the problem.
- b. Can use any instruction, regardless of the user or the machine.
- c. Does not have to be in order of processing.
- d. All of the above.

Answer: A

1.22. To identify the best alternative solutions you should:

- a. Use other people's ideas as well as your own.
- b. Use only your own ideas.
- c. Use any solution, no matter how unacceptable it is.
- d. Identify only the first few that you think about.

Answer: A

1.23. When writing a set of instructions for the computer:

- a. The instructions must be in proper order.
- b. The instructions must be complete.
- c. The instructions assume the computer knows nothing.
- d. All of the above.

Answer: D

1.24. A problem that would require an algorithmic solution is:

- a. Playing a game of chess.
- b. Making a cup of cocoa.
- c. Deciding which stock to buy.
- d. All of the above.

Answer: B

1.25. Computers can best deal with problems that require:

- a. Large amounts of calculations.
- b. Reasoning.
- c. Trial and error.
- d. All of the above.

Answer: A