



أسئلة الامتحان النهائي لمادة : اختبار البرمجيات  
رمز المادة: CS414 التاريخ: 2020/03/07  
الزمن: ساعتان

القسم: الحاسب الالى  
لطلبة الفصل: السابع  
اسم الاستاذ: محمد الجعفري

للفصل الدراسي : خريف 2019

اسم الطالب: .....

رقم القيد .....

**Q1 : True or False (with correction of false statements): (10 points)**

1. Cost of the defect does not increase over the period of time. ( )
2. In Big Bang Integration, all the modules are not required to be completed before the Integration Testing starts. ( )
3. All defects result in failure ( )
4. Tester should not provide much attention to typographical defects. ( )
5. Debugging and Testing are same activities. ( )
6. Testing is only a phase in development life cycle activity. ( )
7. Sometimes Regression Testing is the best for Automation. ( )
8. Software tester should be involved very early during development phase of a project. ( )
9. Non Functional Testing is performed only at System Testing level. ( )
10. Black box testing is only functional testing. ( )

**Q2 : For the program given below : (7 points)**

1. Derive the flow graph
2. Find Cyclomatic complexity
3. List of independent paths
4. Describe one test case of the independent paths. Note that a test case includes inputs and expected outputs , and the expected outputs can be derived directly from requirements specification of the code

Test Case No	Inputs	Expected outputs

```

1. int functionA (int y)
2. {
3. int x = 0;
4. while (x <= (y*y))
5. {
6.     if ((x % 11 == 0) &&
7.         (x % y == 0))
8.     {
9.         printf ("%d" , x);
10.        x++;
11.    } // End if
12.    else if ((x % 7 == 0) ||
13.            (x % y == 1))
14.    {
15.        printf ("%d" ,y);
16.        x = x + 2;
17.    } // End else
18.    printf("/n");
19. } // End while
20. printf ("End of list \n");
21. return 0;
22. } //End functionA
    
```



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Q3 : Explain in brief the concept of static analysis

(2 points)

Q4 : What are the differences between :

(6 points)

1. Tester & Test Leader
2. Definition of Ready(DoR) & Definition of Done(DoD)
3. Test Progress Report, Test Summary Report

Q5 : It is better to test software system by independent tester rather than the software developer, Why? (2 points)

Q6 : For the program given below : (8 points)

- a) Draw the Control Flow Graph (CFG)
- b) Find its Cyclomatic Complexity (CC)
- c) How many test cases are required for each of :
  1. Statement testing
  2. Branch testing
  3. Path testing
  4. Exhaustive testing assuming that maximum number of records is 5 (justify your answers)
- d) Give an example set for test cases of the branch testing

```
1. Program*****
2. A = 0;
3. B=0;
4. Read new_rec {read a new record (X,Y)}
5. Repeat
6.     While A>=0 OR B>=0 Do
7.         If (A < 0) Then
8.             Get X;
9.         Else
10.            Get Y;
11.        Endif
12.            B = B + X
13.            A = A + Y
14.    EndWhile
15.    If A > 0 Then
16.        Print A, X
17.    Else
18.        Print B, Y
19.    Endif
20.    Read new_rec;
21. Until End-Of-File
22. End
```

**Q7 : Choose the right answers: (15 points)**

1. At least how many test cases are required to achieve multiple condition coverage (MCC) of the following code segment: **If((a>5) and (b<100) and (c>50)) x=x+1;**
- 2
  - 4
  - 6
  - 8

2. If branch coverage has been achieved on a unit under test, which of the following is coverage is implicitly implied?
- Path coverage
  - Multiple condition coverage
  - Statement coverage
  - Data flow coverage

3. What would be the Cyclomatic complexity of the following program?

```
int find-maximum(int i,int j, int k){  
int max;  
if(i>j) then  
if(i>k) then max=i;  
else max=k;  
else if(j>k) max=j  
else max=k;  
return(max);  
}
```

- 2
  - 3
  - 4
  - 5
4. The principal aim of carrying out code coverage analysis is to evaluate the quality of:
- Product
  - Test cases
  - Coding
  - Design
5. Which of the following techniques is NOT a black box technique ?
- State transition testing
  - Boundary value analysis
  - Syntax testing
  - All- user testing



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6. Which of the following comes under the Control Structure Testing ?
  - a. Condition testing
  - b. Loop testing
  - c. Data flow testing
  - d. All of the above
  
7. Which of the following Use Cases are useful ?
  - a. Performance Testing
  - b. Business Scenarios
  - c. Static Testing
  - d. Unit Testing
  
8. The problem that threatens the success of a project but which has not yet happened is called as
  - a. Bug
  - b. Error
  - c. Risk
  - d. Defect
  
9. Who leads a walkthrough?
  - a. Author
  - b. Moderator
  - c. Reviewer
  - d. Scribe
  
10. In final examination, student can get 0 to 3000 marks. Student has to get 50% in order to pass the examination. If he gets 2000 or below that he will be given C grade ,if he gets 2000-2500 then he will get B grade and above that he is eligible for A grade. Using boundary value analysis what will be the values for testing if we are testing for C grade?
  - a. 1500,1501,1999,2000
  - b. 1499,1500,1999,2000
  - c. 1500,1501,2000,2001
  - d. 1499,1500,2000,2001
  
11. A shopping website gives discount based on prices of total purchased items .Suppose customer purchases are below 2000 dinar.then no discount, for purchases till 20000, it gives 10% discount and above 20000 it gives 15% discount. Which of the following sets of values lie in 3 different equivalence classes?
  - a. 1800,2000,8000
  - b. 2001,10000,20002
  - c. 1800, 2003,58000
  - d. 100,1800,20001



12. The defect cluster change over time. Which of the followings testing principles implies this?
- Testing shows presence of defects
  - Pesticide paradox
  - Testing is context dependent
  - Defect Clustering
13. Which of the following is the largest bug producer?
- Code
  - Design
  - Specification
  - All of the above
14. Which of the following statements are correct?
- Stubs are used in bottom-up approach.
  - Stubs are used in Top-down approach.
  - Drivers are used in bottom-up approach.
  - Drivers are used in Top-down approach.
- 1, 3
  - 1, 4
  - 2, 3
  - 2, 4
15. Consider the above state transition diagram of a switch.  
Which of the following represents an invalid state transition?
- OFF to ON
  - ON to OFF
  - FAULT to ON
  - None of the above

