Ex/CSE/T/225/78/2010

BACHELOR OF COMPUTER SC. ENGG. EXAMINATION, 2010

(2nd Year, 2nd Semester)

SOFTWARE ENGINEERING

Time : Three hours Full Marks :100

GROUP – A

Match the correct pairs.

	Set – I	**Set – II**
1.	Communicational Cohesion	i) access control, access audit
2.	Fexibility	ii) anchor point milestones
3.	Functional Cohesion	iii) assists in understanding what is to be built when requrements are fuzzy
4.	Incremental Model	iv) between Communicational Cohesion and Procedural Cohesion.
5.	Integrity	v) between Functional Cohesion and Communicational Cohesion
6.	Layer Cohesion	vi) between Procedural Cohesion and Utility Cohesion.
7.	Operability	vii) facilities for operating on the same data.
8.	Prototyping Model	viii) facilities that perform only one computation with no side-effects.
9.	Rapid Application Development (RAD) Model	ix) incremental model that emphasizes a short development cycle.

[TURN OVER]

Set – I	Set – II
10. Sequential Cohesion	x) linear sequences in staggered fashion.
11. Simplicity	xi) modularity generality, expandability, self-descriptiveness.
12. Spiral Model	xii) non-functional requirement
13. Stability	xiii) the better it works the more efficiently it can be tested.
14. Temporal Cohesion	xiv) the femer the changes the femer the distruptions to testing.
15. Throughput	xv) the less there is to test, the more quickly me can test it.

15x2 = 30

GROUP – B

Answer any ***15***

Fill in the Blanks.

16. According to IEEE Standard 610.12-1990, software Engineering is the application of a systematic,_____, _____ approach to the development, operation, and maintenance of software.

17. If software Engieering is viewed as a layered technology, Software Engineering tools provide automated or semiautomated support for the _____ and the _____.

18. Software feasibility has four dimensions: _____, _____, time, and resources.

19. In a proactive strategy, potential risks are identified, their _____ and _____ are assessed, and they are ranked by importance.

20. The following question can be used to discover whether a project is “at risk”.

    Do end-users have _____ _____?

21. The Putnam – Norden – Rayleigh (PNR) curve can be modelled by the equation _____.

22. The SQA group serves as the customer’s _____ _____.

23. The focus of the FTR is on a _____ _____ .

24. A formal technical review is a software _____ _____ activity performed by software engineers (and others).

25. A requirement says something about the _____ a system is supposed to accomplish. It does not describe the _____, nor how the system will be implemented.

26. In order to ensure that the system can be adopted in the future, we should describe _____ that are _____ for subsequent releases.

27. It is quite important to make it clear what hardware and operating system the software must be able to work on. Normally such requirements specify the _____ _____ platforms.

28. A component is any pice of software or hardware that has a clear _____ and can be _____, allowing us to replace it with a different component with equivalent functionality.

29. A _____ is reusable software that implements a _____ solution to a generalized problem.

30. A subsystem is a system that is part of a _____ system and which has a definite _____.

31. Methods in two different classes may provide inputs to each other and be called in sequence; but they would each be kept in their own class, since _____ cohesion is more important than _____ cohesion.

32. In order to create abstractions, we should try to create _____ or superclasses with _____ operations.

33. The most important way to design defensively is to check that all of the _____ to a component are valid, i.e., to check the _____ of each component.

34. All tests should be traceable to _____ _____.

35. A _____ _____ simulates the part of the system that calls the component under test. 15x2 = 30

GROUP – C

Answer any ***10***

Choose the unique correct answer.

36. In the Waterfall Model, a working version of the program becomes available

a) early

b) in the middle

c) late

d) whenever the customer wants it.

37. The following model defines a series of events that will trigger transitions from state to state for each of the Software

Engineering activities, actions, or tasks :

a) Spiral Model

b) RAD Model

c) Incremental Model Development Model

d) Concurrent Development Model.

38. The following risk threatens the viabilty of the software to the built :

a) Business risk

b) Project risk

c) Technical risk.

d) none of the above.

39. In a CP/M activity–on–node network, a particular node W has three immediately preceding activities X,Y, and Z. The earliest start date of W is the

a) earliest of the latest finishing dates of X,Y,Z

b) latest of the earliest finishing dates of X,Y, Z

c) earliest of the earliest finishing dates of X, Y,Z

d) latest of the latest finishing dates of X,Y,Z

40. In a CP/M activity – on–node network, a particular node S has three immediate successers P.Q and R. The latest finishing date of S is the

a) earliest of the latest start dates of P,Q,R

b) latest of the earliest start dates of P,Q,R

c) earliest of the earliest start dates of P,Q,R

d) latest of the latest start dates of P,Q,R

41. Integrity is a

a) Product transition Quality factor.

b) Product Revision Quality factor.

c) Product Operation Quality factor.

d) None of the above.

42. Interoperability is a

a) Product Operation Quality factor.

b) Product Revision Quality factor.

c) Product Transition Quality factor.

d) none of the above.

43. Reducing coupling

a) decreases reusability

b) increases reusability

c) has no effect on reusability

d) contradicts the principle of reusability.

44. A way to build flexibility in to a design is to

a) incrase coupling and increase cohesion

b) reduce coupling and reduce cohesion

c) increease coupling and reduce cohesion

d) reduce coupling and increase cohesion.

45. Boundary testing is a special case of

a) Sandwich testing

b) Integration testing

c) Equivalence testing

d) none of the above.

46. One approach to implementing an Integration testing strategy is to test all components individually and then test them together as a single system.

This approach is called

a) big -bang testing

b) bottom-up testing

c) top-down testing

d) sandwich testing.

47. The following performance test checks if the system can respond to many simultaneous requests :

a) Recovery testing

b) Timing testing

c) Volume testing

d) Stress testing

48. The following system testing activity involves tests of common functionality among a selected group of end users in the target environment :

a) Pilot testing

b) Installation testing

c) Acceptance testing

d) Performance tasting. 10x2 = 20

GROUP – D

Answer all Questions.

49. A piece of software has the following characteristies :

	Simple	Average	Complex
Number of Outputs	12	11	5
Number of Inputs	8	9	6
Number of Inquiry Outputs	5	7	3
Number of Inquiry Inputs	5	8	4
Number of files	12	3	2
Number of Interfaces	9	6	4

a) for each row, compute the function Pomts.

b) Compute the total FP.

c) If the total environmental influence factor is 51, find the Complexity Adjustment factor (CAF).

d) Find the Adjusted function Points .

e) Find LOC for an implementation in the 'C' language. 12

50. Consider the following codes

```
cin >> a >> b > > c;
if (a > 10)
{
Cout < < "hello";
if (b < a)
```



```
{
Cout < < "part I ";
if (c > a)
{
cout < < "part 2";
}
}
else
{
cout << " parts 3 ";
}
}
cout < < "exiting";
```

a) Draw the Control flow graph and show which lines are represented by which nodes.

b) Calculate the cyclomatic number using three methods. 8

————x————