Z	Probability of meeting due date
– 1.2	0.115
– 1.4	0.081
– 1.6	0.055
– 1.8	0.036
– 2.0	0.023
– 2.2	0.014
– 2.4	0.008
– 2.6	0.005
– 2.8	0.003
– 3.0	0.001

50. Prepare a UML class diagram for a graphical document editor that supports grouping. Assume that a document consists of several sheets. Each sheet contains drawing objects, including text, geometrical objects, and groups. A group is simply a set of drawing objects, possibly including other groups. A group must contain at least two drawing objects. A drawing object can be a direct member of at most one group. Geometrical objects include circles, ellipses, rectangles, lines and squares. 8

————————×————————

BACHELOR OF COMPUTER SC. ENGG. EXAMINATION 2009

(2nd Year, 2nd Semester)

SOFTWARE ENGINEERING

Time : Three hours Full Marks : 100

GROUP–A

Match the correct pairs. 15×2=30

Set -I		Set II
1. Abstraction	(i)	BCWP
2. Big-endian/little-endian	(ii)	defensive
3. Communicational cohesion	(iii)	hierarchy
4. Critical path	(iv)	User's' expectation
5. Deprecating	(v)	large amount of data
6. Design by contract	(vi)	many simultaneous requests
7. Earned Value	(vii)	risk management
8. Functional testing	(viii)	obsolescence
9. Interoperatability	(ix)	portability
10. ISO9126	(x)	product transition quality factor
11. Layer cohesion	(xi)	observed system

			behaviour
12.	Reactive strategy	(xii)	side-effects
13.	Stress testing	(xiii)	software quality
14.	Usability testing	(xiv)	zero slack
15.	Volume testing	(xv)	information hiding

GROUP–B

Answer any 15.

Fill in the blanks $15 \times 2 = 30$

16. The disadvantage of top-down testing is that the development of ———— ———— is time–consuming and prove to error.

17. The assumption behind boundary testing is that developers often overlook ———— ———— at the boundary of the equivalence classes.

18. Coupling occurs when there are between one ———— and another.

19. A utility is a procedure or class that has wide ———— to many different ———— and is designed to be reusable.

20. A system is a ———— entity, having a set of ———— responsibilities or objectives and consisting of hardware, software or both.

21. The main deliverable of the Domain Analysis phase is the ———— model, which consists of class programming

Z	Probability of meeting due date
3.0	0.999
2.8	0.997
2.6	0.995
2.4	0.992
2.2	0.986
2.0	0.977
1.8	0.964
1.6	0.945
1.4	0.919
1.2	0.885
1.0	0.841
0.8	0.788
0.6	0726
0.4	0.655
0.2	0.579
0.0	0.500
– 0.2	0.421
– 0.4	0.345
– 0.6	0.274
– 0.8	0.212
– 1.0	0.159

32. Traceability establishes traces among the ———— of activities of the ———— phase and validates them against user requirements.

33. Failure costs are those that would ———— if no defects appeared ———— shipping a product to customers.

34. A software system contains a fanet if for some ———— data the behaviour of the system is ————, that is, different from the one included in software specification.

35. Risk involves two characteristics : ———— and ————.

GROUP–C

Answer any 10.

Choose the unique correct answer 15×2=30

36. The behaviour of the end user is observed and recorded in

a) alpha test
b) beta test
c) usability test
d) all of the above

37. Test drivers are not needed during

a) bottom-uptesting
b) top-down testing
c) sandwich testing
d) none of the above

38. Test stubs are not necessary during

a) bottom-up testing
b) top-down testing
c) sandwich testing
d) none of the above

38. Communicational cohesion is more important than

a) functional cohesion
b) layer cohesion
c) sequential cohesion
d) all of the above

40. The cyclomatic complexity V(G), for a flow graph G is defined as

a) E – N + 2
b) N– E + 2
c) E + N + 2
d) E – N – 2

41. Procedural cohesion is more important than

a) Sequential cohesion
b) Communicational cohesion
c) Layer cohesion
d) Temporal cohesion

42. The software quality factor related to access control and access audit is

a) reliability

b) integrity

c) testability

d) none of the above

43. Compartmentalization is a basic principle of

a) risk management

b) project scheduling

c) testing

d) requirements analysis

44. Activity Diagrams are deliverables of

a) Subsystem Analysis

b) Domain Analysis

c) Requirements Analysis

d) None of the above

45. A use case model is a

a) specification model

b) design model

c) object model

d) subsystem model

abstractions related by ———— .

22. UML applies to ———— and ———— .

23. An extend relationship is a ———— relationship where one use case extends another by adding ———— to it.

24. A ———— ———— is a detailed description of the steps involved in performing a use case and describes sequences of observable behaviour.

25. In a proactive strategy for risk management, potential risks are identified, their ————— and ————— are assessed, and they are ranked by importance.

26. COCOMO II is actually a ———— of ———— models.

27. In the organic mode of the basic COCOMO model, the estimated labour months is ————.

28. The ———— ———— model defines a series of events that will trigger transitions from state to state for each of the software engineering activities, actions or tasks.

29. The Rapid Application Development (RAD) is an ———— software process model that emphasizes a ———— development cycle.

30. Unlike other process models that end when software is delivered, the ———— model can be adapted to apply throughout the ———— of the computer software.

31. The incremental model applies ———— sequences in a ———— fashion as calendar time progresses.

46. The architecture of a system describes

a) objects

b) use cases

c) activity diagrams

d) subsystems, their communication, and interfaces

47. The software equation states that

a) $L = P^{\frac{1}{3}} \times E^{\frac{4}{3}} \times t$

b) $L = P^{\frac{4}{3}} \times E^{\frac{1}{3}} \times t$

c) $L = P \times E^{\frac{4}{3}} \times t^{\frac{1}{3}}$

d) $L = P \times E^{\frac{1}{3}} \times t^{\frac{4}{3}}$

48. In the Critical Path Method, the forward pass is used to calculate

a) latest start date

b) earliest finish date

c) latest finish date

d) earliest start date

GROUP–D

Answer all questions

49. The following table lists the jobs of a network along with their time estimates. 12

Job		Duration (days)		
i	j	Optimistic	Most likely	Pessimistic
1	2	3	6	15
1	6	2	5	14
2	3	6	12	30
2	4	2	5	8
3	5	5	11	17
4	5	3	6	15
6	7	3	9	27
5	8	1	4	7
7	8	4	19	28

a) Draw the PERT network.

b) Calculate the length and variance of the critical path.

c) What is the approximate probability that jobs on the critical path will be completed by the due date of 41 days ? [Use the standard normal table given below]