

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE [SPECIAL] EXAMINATION
MARCH 2021**

B.C.A.

BCA 6B 17 (E4)—SYSTEM SOFTWARE

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. Loaders that allow for program relocation are called _____.
2. What is macro call ?
3. What is a linkage editor ?
4. Linking function performed at execution time is called _____.
5. What is interpreter ?
6. What is a loader ?
7. _____ involves scanning the program to be compiled and recognizing tokens that make up the source statements.
8. What are the two general classes of parsing ?
9. _____ is a scanner generator that used to create scanner of the type required by YACC.
10. What is system software ?

(10 × 1 = 10 marks)

Section B

Answer at least five questions.

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 15.

11. Write a note on lexical analysis.
12. Describe different passes of compiler.
13. Briefly describe about code optimization in compiler.
14. What are the error correcting routines in compiler ?

Turn over

15. How the relocation is done in loaders ?
16. What is macro expansion ? Give an example.
17. What are the different functionalities of assembler ?
18. Write a note on linking loader.

(5 × 3 = 15 marks)

Section C

*Answer at least five questions.
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.*

19. Explain the syntax analyzer tool YACC in detail.
20. Describe the relocating loader schemes in detail.
21. Explain the code generation phase of compiler in detail.
22. Differentiate compiler and interpreter.
23. Briefly write down about operating system.
24. What is called two pass assembler ? Why it is needed ?
25. What is called grammar ? Why it is useful in the scanning and parsing phases of compiler ?
26. Explain about dynamic binders.
27. Describe about linking loader with example.

(5 × 5 = 25 marks)

Section D

*Answer any three questions.
Each question carries 10 marks.*

28. Design an assembler and explain its working.
29. Explain macro expansion and macro definition.
30. Describe the working of lexical analyzer tool LEX.
31. Explain the different phases of compiler in detail.
32. Illustrate the working of dynamic loader in detail with example.

(3 × 10 = 30 marks)

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE [SPECIAL] EXAMINATION
MARCH 2021**

B.C.A.

BCA 6B 17 (E3)—SOFTWARE TESTING AND QUALITY ASSURANCE

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

Section A

*Answer all questions.
Each question carries 1 mark.*

1. Define validation.
2. List any two life cycle models.
3. What is defect bash ?
4. Define black box testing.
5. Write the need of acceptance testing.
6. What is functional testing ?
7. What is regression testing ?
8. Write about factors governing performance testing.
9. What is test reporting ?
10. Write the significance of release metrics.

(10 × 1 = 10 marks)

Section B

*Answer at least five questions.
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 15.*

11. Write the role of white box testing.
12. Briefly explain methodology of performance testing.
13. Write the difference between metric and measure.
14. What is the use of V-model ?

Turn over

15. Comment on Integration Testing as a phase of Testing.
16. Write the merits of system testing.
17. Write the different methods for requirement gathering.
18. Write the main challenges facing during black box testing.

(5 × 3 = 15 marks)

Section C

*Answer at least **five** questions.*

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

19. Write a note on test planning.
20. What is static testing? Write its significance.
21. Compare and contrast unit testing and integration testing.
22. Discuss different types of non-functional testing in detail.
23. Write a note on test management.
24. Discuss different project metrics in detail.
25. Write the relevance of software testing in software engineering.
26. Differentiate performance testing and regression testing.
27. Write the best practices in test reporting.

(5 × 5 = 25 marks)

Section D

*Answer any **three** questions.*

Each question carries 10 marks.

28. Discuss different life cycle models in detail.
29. Compare and contrast white box testing and black box testing.
30. Write the significance of functional testing. Discuss different types of functional testing in detail.
31. Discuss different tools for performance testing.
32. What is software metrics? Explain any three metrics in detail.

(3 × 10 = 30 marks)

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE (SPECIAL) EXAMINATION
MARCH 2021**

BCA

BCA 6B 17 (E1)—MICROPROCESSOR AND APPLICATIONS

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. Fetching the next instruction while the current instruction executes is called _____.
2. _____ flag indicates an overflow condition for arithmetic operations.
3. INTR is a maskable or non-maskable interrupt ?
4. In _____ addressing mode the data is copied from one register to another.
5. Which directives are used to find the size of the data item ?
6. _____ operator which tells the assembler to determine the offset or displacement of a named data item from the start of the segment which contains it.
7. 8255 is a _____ pin DIP chip.
8. What does RESET signal does ?
9. What does the CLTS instruction of 80286 indicate ?
10. _____ bit sets the privilege level of the descriptor in segment descriptor.

(10 × 1 = 10 marks)

Section B

Answer at least five questions.

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 15.

11. What is the use of control flag ? Which are the various control flags present in 8086 ?
12. What is the use of SO, SI, S2 status signals in 8086 ?
13. Write a program to add two 8-bit numbers.

Turn over

14. What does string instructions REPE/REPZ and REPNE/REPZ does ?
15. What is the use of LENGTH operator? Explain with an example.
16. Explain about group directives with an example.
17. What is function of DACK0-DACK3 in 8257 ?
18. What is the use of LSL instruction in 80286 ?

(5 × 3 = 15 marks)

Section C

*Answer at least five questions.
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.*

19. What is the need of segment registers? Which are the different segments registers available in 8086 ?
20. Define The Jobs Performed By The BIU And EU In The 8086 ?
21. List down the differences between software and hardware interrupts.
22. What is an NMI interrupt ? What actions are taken when NMI interrupt is activated ?
23. Explain about ASSUME directive.
24. What is the use of Data control directives ? Explain with examples.
25. Write down the features of 8253.
26. Write down the steps that occur when an interrupt request line of 8259 goes high.
27. List the features of Pentium processors.

(5 × 5 = 25 marks)

Section D

*Answer any three question.
Each question carries 10 marks.*

28. Explain about 8086 minimum and maximum mode configurations. What is the difference between 8086 minimum and maximum mode configurations ?
29. What are the different types of addressing modes of 8086 instruction set ? Explain.
30. Explain in detail about Program Organization Directives with examples.
31. With neat diagram explain in detail the block diagram of 8257.
32. List down the functions of 80386 groups of pins.

(3 × 10 = 30 marks)

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE [SPECIAL] EXAMINATION
MARCH 2021**

B.C.A.

BCA 6B 13—COMPUTER NETWORKS

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. What is Network ?
2. Write about mesh topologies ?
3. What is burst error ?
4. What is backward error correction ?
5. Compare 2G, 3G and 4G networks ?
6. What do you mean by datagram ?
7. What is the purpose of repeaters ?
8. Explain DNS.
9. Explain the term SCTP.
10. What is Cryptography ?

(10 × 1 = 10 marks)

Section B

Answer at least five questions.

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 15.

11. What is Brute-Force attack ?
12. What is Simple Network Management Protocol ?
13. What is HTTP and why it is used ?
14. What is dynamic address mapping protocol ?

Turn over

15. Explain the term **Bridges** and **Routers**.
16. What is Huffman code algorithm ?
17. What are the main IEEE standards ?
18. Differentiate backward and forward error correction.

(5 × 3 = 15 marks)

Section C

*Answer at least **five** questions.*

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

19. Explain different topologies in network.
20. Explain different types of computer networks.
21. Briefly explain the hamming code algorithm.
22. Explain the different methods of random-access protocols.
23. Briefly explain the address mapping.
24. Explain the protocols used in transport layer.
25. Differentiate passive attacks and active attacks.
26. Explain the applications of key crypto systems.
27. Explain various types of attacks.

(5 × 5 = 25 marks)

Section D

*Answer any **three** questions.*

Each question carries 10 marks.

28. What are the different classifications of switching techniques ?
29. Explain data link controls in details.
30. Discuss IP address in details.
31. Explain various application layer protocols in details.
32. Explain Cryptanalysis attack in details.

(3 × 10 = 30 marks)

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE [SPECIAL] EXAMINATION
MARCH 2021**

B.C.A.

BCA 6B 12—OPERATING SYSTEMS

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. In indirect communication, the messages are sent to and received from _____.
2. What problem is solved by Banker's algorithm ?
3. List the operations on processes.
4. Execution of two or more programs by a single CPU is known as _____.
5. What command is used to remove files in Linux ?
6. What are the components of Linux ?
7. What is turnaround time ?
8. What is known as the percentage of times that a particular page number is found in the TLB ?
9. Name three process scheduling algorithms.
10. In which page replacement policy, the Belady's Anomaly occurs ?

(10 × 1 = 10 marks)

Section B

Answer at least five questions.

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 15.

11. Define Process.
12. What is Semaphore ?
13. Differentiate between Korn shell and Bourne shell.
14. Write the function of **ls** and **cp** commands in Linux.

Turn over

15. What is meant by CPU scheduling ?
16. What is Compaction ?
17. What do you mean by Overlays ?
18. Write any *two* features of mobile OS.

(5 × 3 = 15 marks)

Section C

*Answer at least five questions.
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.*

19. What are the contents of a PCB ?
20. What is Deadlock ? What are the different methods to avoid deadlock ?
21. Explain Linux file system.
22. Describe file access permissions in Linux.
23. Explain various performance criteria for process scheduling.
24. Explain free space management.
25. What is a page fault ? How do OS handle it ?
26. Write note on segmentation.
27. Write the importance of authentication and authorization of OS.

(5 × 5 = 25 marks)

Section D

*Answer any three questions.
Each question carries 10 marks.*

28. Explain the simple and multiprogrammed batch systems.
29. Explain the following Linux concepts :
 - (a) Connecting process using pipes.
 - (b) Mathematical commands.
30. What are the classical problems of synchronization ? Briefly explain any *two*.
31. Describe the paging techniques. Discuss its merits.
32. Explain the features and architecture of mobile OS.

(3 × 10 = 30 marks)

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE (SPECIAL) EXAMINATION
MARCH 2021**

BCA

BCA 6B 11—ANDROID PROGRAMMING

(2017 Admissions)

Time : Three Hours

Maximum : 80 Marks

Section A (Short Questions)

Answer all questions.

Each question carries 1 mark.

1. AVD stands for _____.
2. Expand OHA.
3. What is used to check the current status of voice call in handset ?
4. In Linear Layout, to set the orientation, _____ is used at runtime.
5. Toast is a _____ in android.
6. What is schema ?
7. What is .dex file ?
8. Explain Android SDK feature ?
9. Hdpi stands for ?
10. What callback method is used to create menu item ?

(10 × 1 = 10 marks)

Section B (Paragraph)

Answer at least five questions.

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 15.

11. Explain Activity Lifecycle with example ?
12. How does Boolean values in SQLite are stored ? Write an example.
13. What is the importance of having an emulator within the Android Environment ?
14. What are the attributes of Menu Items ? Explain.

Turn over

**SIXTH SEMESTER (CUCBCSS—UG) DEGREE [SPECIAL] EXAMINATION
MARCH 2021**

B.C.A.

BCA 6B 14—SOFTWARE ENGINEERING

(2014 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A

Answer all questions.

Each question carries 1 mark.

1. _____ should deliver the required functionality and performance to the user and should be maintainable, dependable and usable.
2. _____ is the process of evaluating a system or component to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase.
3. _____ testing permits us to examine the internal structure of the program.
4. _____ is the general model of Software Development phase
5. In the object-oriented design, the basic abstraction is _____ functions.
6. Expansion of OOD is _____.
7. The _____ is the most abstract data flow representation of a system.
8. _____ model is used when requirements are frequently changing.
9. _____ are responsible for planning and scheduling project development.
10. Large project (more than 300 KLOC) is in _____ mode of COCOMO model.

(10 × 1 = 10 marks)

Part B

Answer all questions.

Each question carries 2 marks.

11. Differentiate between Embedded control systems and Batch processing systems.
12. Define modularity.
13. Explain exploratory style vs. modern style of software development.
14. State at least two basic differences between control flow-oriented and data flow-oriented design techniques.
15. What are the roles of a system analyst ?

(5 × 2 = 10 marks)

Turn over

Part C

Answer any five questions.

Each question carries 4 marks.

16. Explain about product characteristics.
17. Draw Sequence diagram for View patient information.
18. Differentiate between unit testing and validation testing with example.
19. Explain about process based quality using diagram.
20. How Software standards are important ?
21. Discuss about Risk management activities.
22. What are software testing terminologies ?
23. What is structured chart ? Draw diagram of any structured chart.

(5 × 4 = 20 marks)

Part D

Answer any five questions.

Each question carries 8 marks.

24. Explain about Incremental development model with diagram.
25. Explain various requirement elicitation techniques.
26. Explain about COCOMO cost estimation model.
27. Discuss about object oriented design.
28. Distinguish between functional and non-functional requirements. Identifying functional requirements from a problem description.
29. Define decision table. Prepare decision table for Library Membership Automation Software (LMS) where it should support the following three options - New member, Renewal, Cancel membership.
30. Define coupling. Explain about different types of coupling.
31. Write down at least three differences between function-oriented and object-oriented design approach.

(5 × 8 = 40 marks)