



V Semester B.C.A. Degree Examination, Nov./Dec. 2018
(CBCS) (F + R)
(2016-17 and Onwards)
COMPUTER SCIENCE
BCA-503 : Computer Architecture

Time : 3 Hours

Max. Marks : 100

Instruction : Answer all Sections.

SECTION – A

I. Answer **any ten** questions :

(10×2=20)

- 1) Explain Full adder.
- 2) Define universal gates with logic circuit.
- 3) Explain BSA instruction.
- 4) State De-Morgan's theorem.
- 5) Define Flip-Flop.
- 6) Why we use shift register ?
- 7) Explain Hamming code ?
- 8) Define Indirect Address Mode.
- 9) What is meant by Memory-Mapped I/O ?
- 10) Define virtual memory.
- 11) What is Parity bit ?
- 12) Define types of RAM.

SECTION – B

II. Answer **any five** questions :

(5×5=25)

- 13) Explain the steps involved in design of combinational circuit.
- 14) Write a note on program counter and stack memory.
- 15) What is a Karnaugh Map ? Explain different types of Karnaugh Maps.
- 16) Explain any five register reference instructions.

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- 17) Write a note on Cache memory.
- 18) Compare CISC and RISC processors.
- 19) What are the important characteristics of memory ?
- 20) Explain timing signals.

SECTION – C

III. Answer **any three** questions. **Each** question carries **fifteen** marks. **(3×15=45)**

- 21) Explain the types of program interrupts.
- 22) a) Simplify $F(A, B, C, D) = \sum m(1, 2, 4, 6, 8, 10, 12, 14)$ and draw a circuit diagram. 10
- b) What is a parity Bit ? Explain in brief. 5
- 23) Explain types of CPU organization.
- 24) a) Explain I/O commands. 6
- b) Explain common BUS organization of a Basic computer. 9
- 25) a) Explain Memory hierarchy. 6
- b) Explain different Addressing Modes. 9

SECTION – D

IV. Answer **any two** questions. **(1×10=10)**

- 26) a) Explain direct Address and Indirect Address Modes. 5
- b) Explain the working of R-S flip-flop. 5
- 27) a) Explain 8 to 3 Encoder. 5
- b) Discuss error detection and correction codes. 5



V Semester B.C.A. Examination, November/December 2018
(CBCS) (F+R)
(2016 – 17 & Onwards)
COMPUTER SCIENCE
BCA – 501 : Data Communication and Networks

Time : 3 Hours

Max. Marks : 100

Instruction : Answer all Sections.

SECTION – A

I. Answer **any ten** questions. Each question carries **two** marks. **(10×2=20)**

- 1) Mention four network topologies.
- 2) What is telnet ? How it differs from FTP ?
- 3) What is meant by protocol and internet protocol suite ?
- 4) Define encoding and decoding.
- 5) What is piggybacking ? What is its purpose ?
- 6) What is the difference between ethernet and fast ethernet ?
- 7) Define bit rate and baud rate.
- 8) What do you mean by Nyquist signalling rate ? Explain.
- 9) What is CSMA and CSMA/CD ?
- 10) What do you mean by IEEE 802.11 standards ?
- 11) What do you mean by flooding ? Explain.
- 12) Define datagram and packet.

P.T.O.



SECTION – B

II. Answer **any five** questions. **Each** question carries **five** marks. **(5×5=25)**

- 13) Explain circuit switching.
- 14) How many layers are there in TCP/IP model ? Mention the function of each layer.
- 15) Explain twisted pair cable as transmission medium.
- 16) Describe FDDI.
- 17) Explain 2-d parity check for error detection.
- 18) Explain HDLC frame structure.
- 19) Explain the differences between connection and connectionless services.
- 20) Explain the role of the following network devices :
 - i) Hub
 - ii) Switch
 - iii) Bridge
 - iv) Router
 - v) Repeater.

SECTION – C

III. Answer **any three** questions. **Each** question carries **fifteen** marks. **(3×15=45)**

- 21) a) Explain digital representation of information.
b) Write a note on polynomial code with suitable example. **(7+8)**
- 22) a) Explain optical fibre as transmission medium.
b) Explain different types of bridges in computer networks. **(7+8)**
- 23) a) Explain stop and wait ARQ with a neat diagram.
b) Explain ALOHA and Slotted ALOHA. **(7+8)**



24) a) Explain frequency division multiple access and time division multiple access.

b) Explain sliding window method of flow control. (8+7)

25) a) Explain LLC and MAC sublayers of data link layer.

b) What do you mean by peer-to-peer protocol ? Compare PPP with HDLC. (8+7)

SECTION – D

IV. Answer **any one** question. **Each** question carries **ten** marks. (1×10=10)

26) Explain OSI reference model in detail.

27) Explain any two routing algorithms.



V Semester B.C.A. Degree Examination, November/December 2018
(F+R) (CBCS)
(2016 – 17 & Onwards)
Computer Science
BCA 504 : JAVA PROGRAMMING

Time : 3 Hours

Max. Marks : 70

Instruction : Answer *all* Sections.

SECTION – A

I. Answer **any ten** questions :

(10×2=20)

- 1) What are important elements of internet architecture ?
- 2) What are the default values of float and char primitives data types in Java ?
- 3) Give the general form of switch statement.
- 4) What is the difference between constructor and method ?
- 5) What is the difference between class and abstract class ?
- 6) What is instance variable ? Give an example.
- 7) Mention any four thread methods.
- 8) What are the different access modifiers in Java ?
- 9) What is the difference between error and exception ?
- 10) How applets differ from applications ?
- 11) What is the use of Java I/O classes ?
- 12) Define a stream in Java. Briefly mention the broad classification of Java stream classes.

SECTION – B

II. Answer **any five** questions :

(5×10=50)

- 13) a) Explain the features of Java. 7
- b) Explain the difference between JDK and JRE. 3

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- 14) a) Explain bitwise operators. 5
 - b) What is the difference between overloading and overriding ? 5
 - 15) a) Explain any four string methods with examples. 4
 - b) Define inheritance. Explain any two types of inheritance supported by Java with examples. 6
 - 16) a) Explain the process of creating user defined package with an example. 6
 - b) Give the general form of interface with an example. 4
 - 17) a) Explain the cycle of a thread with neat diagram. 5
 - b) Write the steps involved in creating thread by implementing runnable interface. 5
 - 18) a) Explain try...catch with an example. 4
 - b) Explain life cycle of an applet with a neat diagram. 6
 - 19) a) Explain the steps of executing an applet using a simple code. 5
 - b) Write a program to implement mouse events. 5
 - 20) a) Explain any six methods of graphics class with an example for each. 6
 - b) Write a short note on data output stream and data input stream. 4
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V Semester B.C.A. Degree Examination, Nov./Dec. 2018
(CBCS) (F + R) (2016-17 and Onwards)
COMPUTER SCIENCE
BCA – 505 : Microprocessor and Assembly Language

Time : 3 Hours

Max. Marks : 70

Instruction : Answer all Sections.

SECTION – A

Answer any 10 questions :

(10×2=20)

1. What is a microprocessor ?
2. Explain briefly about the different types of buses in 8085.
3. Name the flags of 8085.
4. Mention any two instructions which clear the contents of accumulator.
5. Explain any two data transfer instructions of 8085.
6. Compare SUB reg and CMP reg instructions.
7. Write an assembly language program to find the 2's complement of an 8-bit number.
8. Define the terms machine cycle and instruction cycle.
9. Define counters and time delays.
10. Define interrupt.
11. Write an assembly language program to add two bytes.
12. What is memory interfacing ?

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SECTION – B

Answer **any five** questions :

(5×10=50)

13. Explain the functional block diagram of 8085 microprocessor with a neat diagram. 10
14. a) What is addressing mode ? Explain briefly the various addressing modes of 8085 microprocessor.
b) Explain the classification of 8085 microprocessor instructions based on word size. Give example. (5+5)
15. a) Write an assembly language program to subtract two 16 bit numbers.
b) Explain the instructions DAA and DAD r_p . (8+2)
16. a) With an example, explain the logical instructions of 8085 microprocessor.
b) Calculate the time delay using a register with clock frequency of
2 MHz
MVI C_1 FF
LOOP DCR C
JNZ LOOP. (5+5)
17. a) Explain the different operations that can be performed on stack.
b) Explain conditional CALL and RET instruction of 8085 microprocessor. (5+5)
18. a) Differentiate memory mapped I/o and peripheral mapped I/o.
b) Write an assembly program to convert BCD to binary. (5+5)
19. a) Briefly explain the 8085 vectored interrupts.
b) Write a note on RIM and SIM 8085 instructions. (5+5)
20. Write short notes on :
a) DMA
b) Demultiplexing of address bus in 8085. (5+5)
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V Semester B.C.A. Degree Examination, November/December 2018
(CBCS) (F + R) (2016-17 and Onwards)
COMPUTER SCIENCE
BCA 502 : Software Engineering

Time : 3 Hours

Max. Marks : 100

Instruction : Answer all Sections.

SECTION – A

I. Answer any ten questions. (10×2=20)

- 1) What is software product ? Name two types of software product.
- 2) Define system engineering.
- 3) What is feasibility study ?
- 4) Define prototype model.
- 5) What is coupling ? Name two types of coupling.
- 6) What are OOD and OOP ?
- 7) What are the advantages of GUI ?
- 8) Define Test case.
- 9) Differentiate between verification and validation.
- 10) Define equivalence class partitioning.
- 11) Define quality assurance.
- 12) Define project management.

SECTION – B

II. Answer any five questions. (5×5=25)

- 13) Write a note on risk management.
- 14) Describe system procurement process.
- 15) Explain the IEEE structure of SRS document.
- 16) Explain evolutionary and throw-away prototyping.
- 17) Describe design principles.
- 18) Write a note on reliability growth modeling.
- 19) Explain the contents of test plan.
- 20) Write a note on quality control.

P.T.O.



SECTION – C

- III. Answer **any three** questions. (3×15=45)
- 21) a) Explain the different phases of SDLC.
 - b) Explain system design process with a diagram. (8+7)
 - 22) Explain the requirement engineering process. 15
 - 23) a) Explain function oriented design.
 - b) Explain different styles of user system interaction. (8+7)
 - 24) a) Explain different types of cohesion.
 - b) Explain software reuse. (8+7)
 - 25) a) Describe clean room software development process.
 - b) Explain different types of software maintenance. (8+7)

SECTION – D

- IV. Answer **any one** question. (1×10=10)
- 26) Explain spiral model with a neat diagram. Mention its merits and demerits.
 - 27) Explain COCOMO model in detail.
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