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(Pages : 2)

Name.....

Parappur. P.U.

Acc. No.

Reg. No.....



FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2017

(CUCBCSS—UG)

Complementary Course

BCS 1C 01—COMPUTER FUNDAMENTALS

Time : Three Hours

Maximum : 64 Marks

Part A

Answer all questions.

I. Choose the correct answer from the choices given :

1. In a flowchart a rhombus represents :

(a) Decision.

(b) Connector.

(c) Terminal.

(d) Process.

2. _____ is an optical storage device.

(a) Floppy.

(b) Hard disk.

(c) CD.

(d) None.

3. 1024 MB is equivalent to _____.

(a) 1 GB.

(b) 1 TB.

(c) 1 MB.

(d) 1 Byte.

II. Fill in the blanks :

4. MIDI stands for _____.

5. In BCD, 10_{10} is represented as _____.

6. The binary equivalent of 25_{10} is _____.

III. State whether the following statements are True or False :

7. Floppy disk is not magnetic storage device.

8. PROM is a volatile memory.

9. DVD is a sequential storage device.

(9 × 1 = 9 marks)

Turn over

Part B

Answer all questions.

10. What is PROM ?
11. Describe X-OR gate with logic diagram and truth table.
12. What is meant by non-positional number system.
13. Write a note on Plotter.
14. What is a parity bit ?

(5 × 2 = 10 marks)

Part C

Answer any five questions.

15. Convert 168.75_{10} to binary, Octal and Hexadecimal number systems.
16. Explain the principle of duality with example.
17. Explain any three secondary storage devices.
18. Differentiate Inkjet and Dot-matrix printers.
19. What is a Flowchart ? Explain the different symbols used in flowchart.
20. Explain Memory Hierarchy.
21. Explain the different types of computer codes with examples.
22. Differentiate half adder and full adder.

(5 × 5 = 25 marks)

Part D

Answer any two questions.

23. Write the algorithm and draw the flowchart to find the largest among three different numbers entered by user.
24. What are Logic Gates ? Explain the following logic gates with circuit diagram.
AND, OR, NOT, NAND, NOR, XNOR.
25. Explain any *four* input and output devices in detail.

(2 × 10 = 20 marks)

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(Pages : 2)

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FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCBCSS-UG)

Complementary Course

BCS 1C 01—COMPUTER FUNDAMENTALS

Time : Three Hours

Maximum : 64 Marks

Part A

Answer all questions.

Each question carries 1 mark.

1. What is the binary equivalent of the decimal number 107 ?
2. Differentiate between 7-bit ASCII and 8-bit ASCII.
3. Define a tautology in Boolean algebra.
4. Define half-adder logic circuit.
5. Draw the circuit diagram for the Boolean function $\overline{x \cdot y} + z$.
6. Describe the role of Memory Buffer Register (MBR) in a CPU.
7. What is Cache memory ?
8. Differentiate between CD-R and CD-RW discs.
9. List various symbols used for drawing flow charts.

(9 × 1 = 9 marks)

Part B

Answer all questions.

Each question carries 2 marks.

10. Convert the binary number $(11010011)_2$ to its hexadecimal equivalent.
11. State and prove De-Morgan's laws in Boolean algebra.
12. Differentiate between RISC and CISC processors.
13. How OCR software recognize characters ?
14. Draw a flow chart to find the greatest of three numbers.

(5 × 2 = 10 marks)

Turn over

Part C

*Answer any five questions.
Each question carries 5 marks.*

15. Write the ASCII-7 coding for the word ROAD in both binary and hexadecimal notations. How many bytes are required to store this word using the same coding ?
16. Prove that $x \cdot y + \bar{x} \cdot z + y \cdot z = x \cdot y + \bar{x} \cdot z$.
17. Explain how data can be stored and retrieved in hard disks.
18. Simplify the Boolean function $F(A, B, C, D) = \Sigma(4, 6, 7, 15)$.
19. Decode and codeword 1110110 created using Hamming code.
20. Design a half-adder combinational circuit.
21. Write notes on Voice Response System.
22. Explain about various types of printers.

(5 × 5 = 25 marks)

Part D

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

23. With the help of neat diagram, explain the working of a digital computer.
24. Briefly explain the following :—
 - (a) Canonical forms of a Boolean expression.
 - (b) Memory hierarchy.
25. Write short notes on :
 - (a) Commonly used input devices.
 - (b) Various coding schemes to represent data in computers memory.

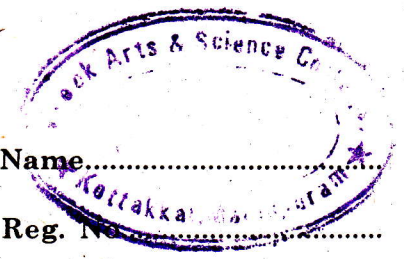
(2 × 10 = 20 marks)

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(Pages : 2)

Name.....

Reg. No.....



FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2015

(CUCBCSS—UG)

Complementary Course

BCS 1C 01—COMPUTER FUNDAMENTALS

Time : Three Hours

Maximum : 64 Marks

Part A

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

*AK-08
C-10
5/11*

1. Find the decimal equivalent of the binary number 10110011.
2. Differentiate between 7-bit ASCII and 8-bit ASCII.
3. What does the duality principle of Boolean algebra says ?
4. Define a full-adder logic circuit.
5. What is the role of an Instruction Register (IR) in a CPU ?
6. Differentiate between PROM and EPROM.
7. What is a digitizer ?
8. Define an algorithm.
9. What is the difference between VGA and SVGA ?

(9 × 1 = 9 marks)

Part B

*Answer all questions.
Each question carries 2 marks.*

10. Subtract $(11011)_2$ from $(110111)_2$ using 2's complement.
11. Using truth table, prove that $X + YZ = (X + Y) \cdot (X + Z)$.
12. What are different steps taken by the CPU to execute an instruction ?
13. Differentiate between even parity and odd parity.
14. Write notes on MICR.

(5 × 2 = 10 marks)

Turn over

Part C

*Answer any five questions.
Each question carries 5 marks.*

15. Write the ASCII-8 coding for the word "RAJU" in both binary and hexadecimal notations. How many bytes are required to store this word using the same coding?
- ~~16.~~ Express the Boolean function $x.y + \bar{x}.z$ in product of sums canonical form.
17. Explain, how cache memory helps in improving the speed of a computer?
- ~~18.~~ Simplify the Boolean function $F(A, B, C, D) = \Sigma(3, 7, 11, 13, 14, 15)$.
19. Decode the codeword 1110110 created using Hamming code.
20. Construct the logic circuit diagram for Exclusive-OR function using NAND gates only.
21. Design a full-adder combinational circuit.
22. Explain about various pointing devices.

(5 × 5 = 25 marks)

Part D

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

1. Explain how data can be stored and accessed on a magnetic disk?
2. Write short notes on :
 - (a) Measuring storage capacity of a computer.
 - (b) Various logic gates used to construct circuit diagrams.
3. Briefly explain the following :
 - (a) Various types of printers.
 - (b) Memory hierarchy.

(2 × 10 = 20 marks)

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(Pages : 2)

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Name.....

Reg. No.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2014

(CUCBCSS—U.G.)

Complementary Course—Computer Science
BCS 1C 01—COMPUTER FUNDAMENTALS

Time : Three Hours

Maximum : 64 Marks

Part A

Answer all questions. Each question carries 1 mark.

1. What is the binary equivalent of the decimal number 105 ?
2. Differentiate between BCD and EBCDIC.
3. What is a logic gate ? Name the three basic logic gates.
4. Find the complement of the Boolean function $\bar{x}.y.\bar{z} + x.\bar{y}.z$.
5. Prove that $x.(x+y) = x$.
6. What do you mean by an instruction set of a computer ?
7. List any two secondary storage devices which do not use any mechanical component for its operation.
8. What are the specifications to be considered for comparing two monitors ?
9. List various symbols used for drawing flowcharts.

(9 × 1 = 9 marks)

Part B

Answer all questions. Each question carries 2 marks.

10. Subtract $(011011)_2$ from $(110111)_2$ using 1's complement method.
11. Using the laws of Boolean algebra, prove that $A + \bar{A}B = A + B$.
12. Differentiate between RAM and ROM.
13. How barcode reader recognize the barcodes.
14. Draw a flow chart to find the average of 10 numbers.

(5 × 2 = 10 marks)

Turn over

Part C

Answer any five questions. Each question carries 5 marks.

15. What are the advantages of using ASCII code compared to EBCDIC ?
16. Draw the simplified logic diagram using only NAND gates to implement the three input Boolean function $F(A, B, C) = \sum(0, 1, 2, 5)$.
17. Explain how cache memory helps in improving the speed of a computer ?
18. What are the factors affecting the disk access time ? Explain.
19. Simplify the Boolean function $F(A, B, C, D) = \sum(0, 1, 2, 4, 5, 7, 11, 15)$.
20. Encode the four bit data word 0101 using Hamming code.
21. Design the full adder combinational circuit.
22. Explain about various control devices.

(5 × 5 = 25 marks)

Part D

Answer any two questions. Each question carries 10 marks.

23. With the help of a block diagram, explain the working of the control unit of a computer system.
24. Write short notes on :
 - (a) Commonly used output devices.
 - (b) MIDI instruments.
25. Briefly explain :
 - (a) Universal NAND and NOR gates.
 - (b) Various units used to measure the memory capacity of a computer.

(2 × 10 = 20 marks)

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(Pages : 2)

Name.....

Reg. No.....

**FIRST SEMESTER B.Sc. DEGREE (SUPPLEMENTARY/IMPROVEMENT)
EXAMINATION, NOVEMBER 2014**

(UG-CCSS)

Complementary Course

Computer Science

CS IC 01—COMPUTER FUNDAMENTALS AND APPLICATION PACKAGES

Time : Three Hours

Maximum : 30 Weightage

I. Answer *all* questions :

- 1 $(952)_{10} = (\text{————})_8$.
- 2 In _____ coding system each digit of a decimal number is represented by its binary equivalent.
- 3 In EBCDIC, the character representation of letter I is _____.
- 4 $(1010110)_2 + (1011010)_2 = (\text{————})_2$.
- 5 The smallest resolvable part of picture represented in computers memory is _____.
- 6 _____ device have a limitation that we can only store information to it but cannot erase or modify it.
- 7 The processing speed of a personal computer is measured in _____.
- 8 _____ is a volatile memory.
- 9 _____ acts as a high speed buffer between CPU and main memory.
- 10 The list of instructions supported by a CPU represents its _____.
- 11 A _____ is an input device used for converting pictures, maps, and drawings into digital from for input to computers.
- 12 _____ type of printers produce high quality output by forming characters and images with charged tiny link particles.

(12 × ¼ = 3 weightage)

II. Answer *all* questions :

- 13 Convert the binary number 11010011 to its decimal equivalent.
- 14 Using hexadecimal notation, write the packed decimal coding for the number 1256.
- 15 List the rules for binary subtraction.

Turn over

- 16 Find the complement of the Boolean expression $A.(B.C. + \bar{B}.\bar{C})$.
- 17 What is cache memory ?
- 18 What is WORM ?
- 19 What do you mean by clock speed of a computer system ?
- 20 What is the main limitation of MICR technology ?
- 21 What is a joystick ?

(9 × 1 = 9 weightage)

III. Answer any *five* questions :

- 22 Differentiate between micro programmed and hardwired control units.
- 23 Divide $(0110111)_2$ by $(0111)_2$.
- 24 Prove that the canonical form of the Boolean function $\Sigma(1, 4, 5, 6, 7)$ consisting of three variables is equivalent to $\Pi(0, 2, 3)$.
- 25 Express the Boolean function $F = x.y + \bar{x}.z$ in product-of-sum form.
- 26 Differentiate among a bit, a byte and a nibble.
- 27 A computer has 512 MB of memory. How many characters can be stored in its memory at a time ?
- 28 Explain the working mechanism of a drum plotter.

(5 × 2 = 10 weightage)

IV. Answer any *two* questions :

- 29 Write short notes on :
 - (a) Central Processing Unit.
 - (b) Memory storage devices.
 - (c) Logic gates.
 - (d) Zoned and Packed decimal numbers.
- 30 Give a detailed account of different type of printers.
- 31 Write short notes on :
 - (a) EPROM.
 - (b) DRAM.
 - (c) RISC.
 - (d) Storage evaluation criteria.

(2 × 4 = 8 weightage)

D 53550

(Pages : 2)

Name.....

Reg. No.....

**FIRST SEMESTER B.Sc. DEGREE EXAMINATION
JANUARY 2014**

(UG-CCSS)

Complementary Course – Computer Science

CS 1C 01 – COMPUTER FUNDAMENTALS AND APPLICATION PACKAGES

Time : Three Hours

Maximum : 30 Weightage

I. Answer *all* questions :

1. The total number of digits available in the number system determines the value of its _____.
2. In EBCDIC, the character representation of letter S is _____.
3. _____ coding scheme provides a unique number for every character independent of the platform, program and language.
4. $(1010110)_2 + (1011010)_2 = (\quad)_2$.
5. When a key is pressed on the keyboard, _____ standard converts the keystroke into the corresponding bits.
6. _____ is a place where actual execution of instructions takes place during data processing.
7. RISC is _____.
8. _____ is an electronic circuit that operates on one *or* more input signals to produce standard output signals.
9. The speed of a processor directly depends on _____.
10. _____ provides a screen with graphic icons *or* menus to give instructions to the computer.
11. To interpret and executes various instructions, CPU uses a number of special memory units called _____.
12. The technology used in banking industry for faster processing of large volumes of cheques is termed as _____.

(12 × ¼ = 3 weightage)

Turn over

II. Answer *all* questions :

13. Define the term collating sequence.
14. Subtract $(011011)_2$ from $(110111)_2$ using 1's complement method.
15. Find the complement of the Boolean expression $A \cdot (B + C) \cdot (\bar{B} + \bar{C})$.
16. State De Morgan's laws in Boolean algebra.
17. What are the two main components of CPU of a computer?
18. What is Cache memory?
19. What is WORM?
20. What are peripheral devices?
21. What is a non-impact printer?

(9 × 1 = 9 weightage)

III. Answer any *five* questions :

22. Convert the following to binary: $(3BC)_{16}$, $(534)_8$, $(1243)_{10}$, $(1.234)_8$.
23. Multiply the binary numbers 101111 and 111.
24. Write the EBCDIC coding for the word 'HIT' in both binary and hexadecimal notations. How many bytes are required to store this word using EBCDIC?
25. Construct the logic circuit diagram for the Boolean expression by using NAND gates only : $(\bar{A} + \bar{B}) \cdot (A + C) \cdot (B + \bar{C})$.
26. Express the Boolean function $F = A + \bar{B} \cdot C$ in sum-of-products form.
27. Differentiate between random access and sequential access storage units.
28. What are the limitations of image scanner? .

(5 × 2 = 10 weightage)

IV. Answer any *two* questions :

29. Write short notes on :
 - (a) Unicode.
 - (b) Canonical forms of Boolean functions.
 - (c) Combinational circuits.
 - (d) Storage evaluation criteria.
30. With the help of a neat diagram, explain the processor and memory architecture of a computer system.
31. Explain any *two* input and output devices.

(2 × 4 = 8 weightage)

D 32515

(Pages : 2)

Name.....

Reg. No.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, JANUARY 2013

(CCSS)

Computer Science

CS1 C01—COMPUTER FUNDAMENTALS AND APPLICATION PACKAGES

Time : Three Hours

Maximum : 30 Weightage

I. Answer all *twelve* questions.

- 1 ASCII stands for _____.
- 2 A binary digits is called a _____.
- 3 The Excess-3 equivalent of the BCD code 0101 is _____.
- 4 EEPROM stands for _____.
- 5 CD-ROM stands for _____.
- 6 The input device used mostly for computer games is _____.
- 7 An example of a non-impact printer is _____.
- 8 SDLC stands for _____.
- 9 The binary equivalent of 20 is _____.
- 10 The universal gates are _____.
- 11 The device which is used to input an images into the computer is _____.
- 12 Which flowchart symbol used to indicate I/O operation _____.

(12 × ¼ = 3 weightage)

II. Short Answer Type Questions (Answer all *nine* questions)

- 13 What are complements ?
- 14 What are truth tables ?
- 15 Define Cache memory.
- 16 What is a digitizing tablet ?
- 17 What is the functions of a touch screen ?
- 18 Define plotter.
- 19 What is a half-adder ?
- 20 Write the truth able for NAND gate.
- 21 What is a subtractor ?

(9 × 1

III. Short essay or paragraph questions (Answer any *five* questions) :

- 22 What is the significance of 2's complement in binary arithmetic ?
- 23 What is the functions of a scanner and what are the different types of scanners ?
- 24 What are the different types of monitors ?
- 25 What do you mean by top-down program design ?
- 26 Explain XNOR operations with truth table.
- 27 What are the major functions of a computer ?
- 28 What are registers ? State the importance of registers.

(5 × 2 = 10 weightage)

IV Essay questions (Answer any *two* questions) :

- 29 What are the different kinds of input devices ? Explain.
- 30 Explain different testing methods.
- 31 Convert the decimal numbers 101 to equivalent binary, octal and hexadecimal numbers.

(2 × 4 = 8 weightage)

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(Pages 2)



Name.....
Reg. No.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2009

Computer Science—Complementary Course

CMC A 01—COMPUTER FUNDAMENTALS AND APPLICATION PACKAGES

(C.S.S. Programme)

Time : Three Hours

Maximum Weightage : 30

I. Answer *all* questions :

- 1 $(1234)_8 = (\dots\dots\dots)_{10}$.
- 2 $101101 + 101001 = \text{—————}$ (Binary numbers)
- 3 ————— is an example of error detecting and correcting code.
- 4 $X + XY = \text{—————}$ (X and Y are boolean variables)
- 5 ————— is an example of a universal gate.
- 6 Nibble is a collection of ————— bits.
- 7 2's complement of 10110001 is —————.
- 8 Register which holds the current instruction that is being executed is —————.
- 9 Give the full form of MICR.
- 10 Draw flow chart symbol for "Decision".
- 11 Dot matrix is —————.
 - (a) An impact printer.
 - (b) A non-impact printer.
 - (c) A page printer.
- 12 ————— is an example of pointing device.

(12 × ¼ = 3)

II. Answer *all* questions : —

- 13 Give the significance of computer codes.
- 14 What is a parity bit ?
- 15 Give the truth table of XOR operation.
- 16 Draw block diagram of a half adder.
- 17 Define access time of a hard disk.
- 18 What is a register ?
- 19 Give the basic principle of dot matrix printers.

Turn over

20 What is a scanner ?

21 Define algorithm.

(9 x 1 = 9)

III. Answer any *five* questions :

22 With suitable examples, explain Binary to Hexadecimal, Hexadecimal to binary, Binary to Octal and Octal to Binary conversions.

23 Simplify the following boolean expression and draw logic diagram : —

$$xy\bar{z} + x\bar{y}z + xyz + \bar{x}yz$$

24 Prove that : $\overline{x + y} = \bar{x} \cdot \bar{y}$

25 Explain "Microprogrammed" control unit.

26 Briefly explain working of CD drive.

27 Compare laser printer with inkjet printer.

28 Draw flow chart to find largest of three given numbers.

(5 x 2 = 10)

IV. Answer any *two* questions :

29 Give and explain truth table, block diagram and NAND-NAND implementation of a full adder.

30 Give a detailed account of Hard disk.

31 Discuss the working of the following : key board, mouse, digital camera and joystick.

(2 x 4 = 8)

(12 x 2 = 24)

Turn over