

**E 6616**

(Pages : 3)

Reg. No.....

Name.....

**B.C.A. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2017**

**Second Semester**

**Core Course—FUNDAMENTALS OF DIGITAL SYSTEMS**

(2013 Admission onwards)

Time : Three Hours

Maximum Marks : 80

**Part A (Short Answer Questions)**

*Answer all questions. 1 mark each.*

- 1 Why do digital computers use binary numbers for their operation ?
- 2 What do you mean by signed magnitude representation ?
- 3 Expand BCD code.
- 4 What are registers ?
- 5 Draw the logic diagram and truth table of XOR gate.
- 6 Convert octal number 134 to hexadecimal.
- 7 Convert binary number 1101.11 to decimal.
- 8 Find the 1's and 2's complements of the binary number 1011010.
- 9 Convert decimal number 428 into hexadecimal.
- 10 What do you mean by SOP and POS expressions ?

(10 × 1 = 10)

**Part B (Brief Answer Questions)**

*Answer any eight questions. 2 marks each.*

- 11 What is a parity bit ? What are the different types of parity bits ?
- 12 What is the difference between a latch and a flip flop ?
- 13 Perform the following binary operations :
  - (a) 101010 + 110101.
  - (b) 11001 - 10110
- 14 What is a D flip flop ? Write the truth table and logic diagram.
- 15 What are min terms and max terms ?
- 16 What are universal gates ? Give examples.
- 17 What is the difference between positive edge triggered and negative edge triggered flip flops ?

**Turn over**

- 18 What are counters ?  
 19 What is the difference between main memory and secondary memory ?  
 20 What is a demultiplexer ?  
 21 Simplify the following logic expression :

$$ABC + A\bar{B}C + AB\bar{C} + A\bar{B}\bar{C}$$

- 22 Draw the logic diagram for the expression :

$$Y = (\bar{A} + \bar{B})(C + D)$$

(8 × 2 = 16)

### Part C (Descriptive/Short Essay Type Questions)

*Answer any six questions. 4 marks each.*

- 23 State and prove De Morgan's Theorem.  
 24 What is a half adder ? Write the truth table and draw the logic diagram.  
 25 Explain the working of a master slave JK flip flop.  
 26 Explain parity generators and checkers.  
 27 (a) What is the difference between RAM and ROM ?  
 (b) What is the application of flip flop in building memory ?  
 28 Simplify the Boolean expression :  
 $Y(A, B, C, D) = \Sigma(0, 2, 4, 6, 8, 10, 12, 14, 15)$   
 using Karnaugh map.  
 29 Explain the working of binary weighted digital to analog converter.  
 30 With the help of logic diagram and truth table, explain the working of a 4 - to - 1 multiplexer.  
 31 Explain the rules and laws of Boolean Algebra.

(6 × 4 = 24)

### Part D (Long Essays)

*Answer any two questions. 15 marks each.*

- 32 (a) Explain the organisation of ROM memory with an example.  
 (b) Explain the working of SR flip flop with truth table and logic diagram.  
 33 (a) With the help of logic diagram and truth table, explain full adders.  
 (b) Explain the working of AND, OR and NOT gates with truth table.

- 34 Explain the different types of shift registers.  
 35 (a) Explain successive approximation A/D converter.  
 (b) Explain decoders and encoders.

(2 × 15 = 30)

**E 2329**

(Pages : 3)

Reg. No.....

Name.....

**B.C.A. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2018**

**Second Semester**

Core Course—ACCOUNTING AND PROGRAMMING IN COBOL

(2013—2016 Admissions)

Time : Three Hours

Maximum Marks : 80

**Part A**

*Answer all questions.*

*Each questions carries 1 mark.*

1. What is the objective of accounting ?
2. Which account is not a liability account ?
3. What is posting ?
4. The accounts that records expenses, gains and losses are ——— ?
5. Which division in COBOL is optional ?
6. Write syntax for MOVE statement.
7. ACCEPT statement is used for which purpose ?
8. Explain the syntax OPEN statement.
9. What is the purpose of REWRITE clause ?
10. The use CODE-SET clause is to ———.

(10 × 1 = 10)

**Part B (Brief Answer Questions)**

*Answer any eight questions.*

*Each question carries 2 marks.*

11. What is the purpose of cash book ?
12. What is trading account ?
13. What is a ledger ? How it is different from a journal ?
14. Differentiate between credit and debit balance.
15. What do you mean by a Picture clause ?
16. What figurative constants ?

**Turn over**

17. What are the entries under environment division ?
18. What are the three classes of data item ?
19. List the preempted level numbers in COBOL.
20. File section includes which details.
21. What is indexed sequential file ?
22. What are the two types of STOP statements ?

**Part C (Descriptive/Short Essay Type Questions)**

*Answer any six questions.*

*Each question carries 4 marks.*

(8 × 2 = 16)

23. Prepare Rishika's account in the books of Ritu 2017 based on following transactions :
  - July 1 - Credit balance in Rishika account Rs. 2,500.
  - July 6 - Bought goods from Rishika Rs. 650.
  - July 10 - Returned goods to Rishika Rs. 160.
  - July 20 - Purchased goods from Rishika on credit Rs. 750.
  - July 22 - Rishika returned goods Rs. 45.
  - July 24 - Paid to Rishika Rs. 2,260 in full settlement of her account.
24. What is balance sheet ? Explain nature and need of Balance sheet.
25. Briefly explain the importance of trading account and manufacturing account.
26. Describe the format of DATA DIVISION.
27. Explain the usage of following syntax.
  - (a) ADD verb.
  - (b) SUBTRACT verb.
28. Explain the syntax MOVE Corresponding with an example.
29. What are the points to be noted in connection with range of a PERFORM statement?
30. Explain about Condition names.
31. With syntax explain OPEN, WRITE statements of sequential file.

(6 × 4 = 24)

**Part D (Long Essay)**

*Answer any two questions.*

*Each question carries 15 marks.*

32. Write notes on different file operations in COBOL.
33. Journalize the following transactions, post them in ledger and balance accounts on 31<sup>st</sup> March 2017.

Date	Particulars	Amount (Rs.)
01-02-2017	Ramesh started business with cash	1,50,000
02-02-2017	Paid into bank	70,000
04-02-2017	Bought goods for cash	5,000
12-02-2017	Drew cash from bank for office use	1,000
13-02-2017	Sold goods to Krishna on credit	1,500
20-02-2017	Bought goods from Ghosh on credit	2,250
22-02-2017	Received from Krishna	1,450
	Allowed him discount	50
24-02-2017	Paid cash to Ghosh	2,150
	Discount received	100
25-02-2017	Cash sales for the month	800
28-02-2017	Rent paid	600
28-02-2017	Salary paid	2,000

34. (a) Write short notes on ACCEPT verb.  
(b) Write a program to find the sum of first  $n$  natural numbers.
35. What do you mean by condition - Name Condition ? Explain.

(2 × 15 = 30)

**E 2331**

(Pages : 2)

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**B.Sc./B.C.A. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2018**

**Second Semester**

Core Course—DATA STRUCTURES

(For B.Sc. Computer Applications and B.C.A.)

(2013-2016 Admissions)

Time : Three Hours

Maximum Marks : 80

**Part A (Short Answer Questions)**

*Answer all questions.*

*Each question carries 1 mark.*

1. The matrix with zeros as its dominating elements is called \_\_\_\_\_.
2. What is the time complexity of selection sort ?
3. Circular queue operations are performed on the basis of \_\_\_\_\_ principle.
4. Two different operations of stack are \_\_\_\_\_ and \_\_\_\_\_.
5. In linked list pointers are points to \_\_\_\_\_.
6. Garbage collection is a form of \_\_\_\_\_.
7. The complexity of binary search algorithm is \_\_\_\_\_.
8. In binary tree a node with same parent is called \_\_\_\_\_.
9. In sequential organization the physical sequence of records is ordered on some key is called \_\_\_\_\_.
10. The values returned by a hash function are called \_\_\_\_\_.

(10 × 1 = 10)

**Part B (Brief Answer Questions)**

*Answer any eight questions.*

*Each question carries 2 marks.*

11. Define data structure.
12. List the classifications of data structure.
13. Define circular queue ?
14. How to represent a string ?
15. How to represent linked list?
16. What is meant by dynamic data structure ?

**Turn over**

17. State the difference between queues and linked lists.
18. Define a tree ?
19. What is random file ?
20. Explain about hashing function ?
21. What are the advantages of binary search over linear search ?
22. What is a priority queue ?

(8 × 2 = 16)

**Part C (Descriptive/Short Essay Type Questions)**

*Answer any six questions.*

*Each question carries 4 marks.*

23. Explain about selection sort ?
24. What are the linear array operations ?
25. How to convert infix to postfix ? Explain with an example.
26. Explain operation on a queue with suitable example ?
27. What is doubly linked list ?
28. What is garbage collection ?
29. What is strictly binary tree? Give example.
30. Explain the concept of recursion with an example.
31. What are inverted files ?

(6 × 4 = 24)

**Part D (Long Essays)**

*Answer any two questions.*

*Each question carries 15 marks.*

32. Explain binary search tree with examples ?
33. Write and explain the algorithm to implement linked list using pointers.
34. Explain in detail about insertion and deletion in linked list ?
35. Write notes on:
  - (a) Cellular partitioning.
  - (b) Bubble sort.

(2 × 15 = 30)