

B.C.A. SEM-II (2014 COURSE) CBCS : WINTER - 2017

SUBJECT : COMPUTER ORGANIZATION & ARCHITECTURE

Day : **Thursday**
Date : **09/11/2017**

Time **10.00 AM TO 01.00 PM**
Max. Marks : 100

W-2017-1606

N.B.

- 1) Answer any **FOUR** questions from Section – I and any **TWO** questions from Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION - I

- Q.1** What is a flip-flop? Explain types of it. (15)
- Q.2** Discuss functioning of 4 to 1 line multiplexer with help of a circuit diagram. (15)
- Q.3** Explain various memory reference instructions with suitable example. (15)
- Q.4** Describe mapping techniques of cache memory in detail. (15)
- Q.5** Draw the block diagram of a computer with I/O processor and discuss the process of CPU - IOP communication in detail. (15)
- Q.6** Explain functioning of 4 bit adder-subtractor with help of block diagram. (15)
- Q.7** Write the short note on any **TWO** of the following: (15)
- a) CISC
 - b) Assembler
 - c) Instruction codes

SECTION - II

- Q.8** Solve the following: (20)
- a) Find 2's complement: $(1110101)_2$
 - b) $(11111)_2 * (111)_2$
 - c) $(10000011)_2 - (11000011)_2$
 - d) Convert the expression in proper notation and solve it with stack:
 $[(3+4)*(3-1)]+(4 * 9)$
 - e) Show that : $(A+B)' (A'+B')' = 0$
- Q.9** A sequential circuit has two D flip-flops, A and B, one inputs x and one output z. The flip-flop input equations and circuit output is as follows: (20)
- $D_A = x' + x' B$
 $D_B = x' B + x A$
 $Z = x' A + A' B'$
Draw the logic diagram, State table and state diagram.
- Q.10** With the help of circuit diagram explain the structure and functioning of 4 bit bidirectional shift register with parallel load. (20)

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- 2) Solve both sections in the **SAME** answer book.
- 3) Figures to the right indicate **FULL** marks

Q.1	What is Oracle? Explain the various tools of oracle in detail.	(15)
Q.2	Explain CODD's rules that qualify a database as relational database.	(15)
Q.3	Explain the following commands with example. i) SELECT ii) TRUNCATE TABLE iii) UPDATE	(15)
Q.4	What are data constraints? Explain the various data constraints with their purpose and example.	(15)
Q.5	What is PL/SQL? Explain the various sections of PL/SQL block with example.	(15)
Q.6	What is cursor? Explain the different types of cursors. Also explain the steps involved in declaring a cursor and manipulating data in active set.	(15)
Q.7	Write short notes on any THREE of the following: a) Data types in SQL c) String functions b) Set operations d) Sequence	(15)

Q.8	Write SQL queries for the following:	
i)	Create following tables with proper constraints. Client_Master (Client_No (PK), ClientName, City, State, Balance_due) Sales_Order (Order_No(PK), Order_Date, Client_No (FK), Delivery_Date)	(04)
ii)	Insert 2 records in each table.	(04)
iii)	Find the name of clients having 'a' as second letter in their names.	(02)
iv)	Find the name of clients who stay in 'Mumbai' or 'Delhi'.	(02)
v)	Print the order numbers placed in the month of January.	(02)
vi)	Add column Contact Number in Client Master table.	(02)
vii)	Display name of clients from the state of Maharashtra.	(02)
viii)	Display name of clients and their balance due in the descending order on column Balance_due.	(02)
Q.9	a) Write a PL/SQL block to generate a multiplication table of 5.	(10)
	b) Write a PL/SQL block to enter the value of Radius and compute area of circle.	(10)
Q.10	Consider the following table structure:- Employee (Eno (PK), Ename, salary, Date_of_joining) Write a simple PL/SQL Block to increment the salary of employee 'Raj' by 10% and that of 'Ravi' by 20%. The changes should be reflected in the Employee table.	(20)

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Day : **Tuesday**
Date : **14/11/2017**

W-2017-1608

Time : **10.00 AM TO 01.00 PM**
Max. Marks : 100

N. B. :

- 1) Attempt **ANY FOUR** questions from Section – **I** and attempt **ANY TWO** questions from Section – **II**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

- Q. 1** What is dynamic memory allocation? Explain different memory allocation functions with example of each. **(15)**
- Q. 2** Differentiate between union and structure. Illustrate use of them with example. **(15)**
- Q. 3** Define recursion. Explain how to write recursive function with suitable example. **(15)**
- Q. 4** Discuss various file handling functions with syntax and use. **(15)**
- Q. 5** What is a header file? Discuss different header files with examples. **(15)**
- Q. 6** What is the difference between array and pointer? Illustrate the concept of both with example. **(15)**
- Q. 7** Write short notes on **ANY THREE** of the following: **(15)**
- a) Graphics in C
 - b) Bitwise operators
 - c) Nesting of Structure
 - d) extern storage class

SECTION - II

- Q. 8** Write a C programs to search a particular word from text file and count the number of occurrences of that word and display the same. **(20)**
- Q. 9** Write a C program to accept integers through command line arguments and print the sum of prime numbers. Make use of user-defined function to find whether number is prime or not. **(20)**
- Q.10** Design a structure to hold electricity bill details such as customer_name, month and year of bill along with units consumed. Display the bill of a particular customer. Make use of constants to consider per unit charges as below: **(20)**

Units	Charges (Rs.)
0 to 100	2.91
101 -200	3.50
200 and above	4.50

Day: **Thursday**
Date: **16/11/2017**

W-2017-1609

Time: **10.00 AM TO 01.00 PM**
Max. Marks: 100

N.B.:

- 1) Attempt any **FOUR** questions from Section –I and any **TWO** questions from Section –II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.
- 4) Use of non-programmable **CALCULATOR** is allowed.

SECTION-I

- Q.1** Explain in detail nature and scope of Financial Management. (15)
- Q.2** What do you mean by Accounting? Discuss Various Accounting Conventions. (15)
- Q.3** Discuss various factors affecting Working Capital. (15)
- Q.4** Explain the following: (15)
- i) Time value of money
 - ii) Venture Capital
 - iii) Break Even Point
- Q.5** What do you mean by Ratio Analysis? Discuss the significance of Ratio Analysis. (15)
- Q.6** Write an exhaustive note on classification of 'Cost'. (15)
- Q.7** Write short notes on any **THREE** of the following: (15)
- a) Margin of safety
 - b) Ledger
 - c) Limitations of long term sources of Finance
 - d) Budgetary control
 - e) Inventory Management

P. T. O.

SECTION-II

Q.8 For the Production of 10,000 units the following are the Budgeted Expenses: **(20)**

Particulars	Cost per unit (Rs.)
Direct Materials	80
Direct Labour	50
Variable factory overhead	25
Fixed factory overhead(100% fixed)	10
Variable expenses (Direct)	12
Selling expenses (10% fixed)	10
Administration expenses (100% fixed)	15
Distribution Expenses (10% fixed)	5

Prepare a Flexible Budget for the Production of 12,000 units.

Q.9 The following information is available for Product A and B. **(20)**

Particulars	Product A (Rs.)	Product B (Rs.)
Sales	15,00,000	18,00,000
Marginal Cost	9,00,000	13,00,000
Fixed Cost	2,00,000	2,50,000

You are required to calculate following for product A and Product B.

- | | |
|-----------------------|----------------------|
| i) Profit | ii) P/V Ratio |
| iii) Break Even sales | iv) Margin of Safety |

Q.10 A firm whose cost of capital is 10% is considering to mutually exclusive proposals X and Y the details of which are as follows: **(20)**

Year	Projected Cash Inflows	
	Proposal X (Rs.)	Proposal Y (Rs.)
1	1,00,000	2,00,000
2	2,50,000	2,80,000
3	3,00,000	3,20,000
4	4,00,000	4,00,000
5	5,50,000	6,00,000
Total:	16,00,000	18,00,000

Initial Investment for Project X is Rs.10, 00,000 and for Project Y is Rs.10, 00,000.

Calculate:

- i) simple Pay Back period
- ii) Net Present Value at 10% rate of discount
- iii) Profitability Index at 10 % rate of discount