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**[5263]-101**

**B.C.A. (I Sem.) EXAMINATION, 2017**

**101 : MODERN OPERATING ENVIRONMENT AND MS-OFFICE**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

- N.B. :—**
- (i) All questions are compulsory.
  - (ii) Figures to the right indicate full marks.
  - (iii) Draw neat diagram wherever necessary.

**1. Answer the following (any *eight*) :** **[16]**

- (a) What is Hybrid Computer ?
- (b) What is purpose of Data bus ?
- (c) What is virtual keyboard ?
- (d) Write the following conversions :
  - (i) 1 GB = (?) MB
  - (ii) 1 TB = (?) GB.
- (e) What is function of compiler ?
- (f) What is Batch Operating System ?
- (g) What is Star topology ? Draw diagram.
- (h) Write any *two* graph types in MS-Excel.
- (i) Write any *two* features of PowerPoint.
- (j) What is MAN ?

P.T.O.

- 2.** Answer the following (any *four*) : [16]
- (a) Explain in detail Generation of Computer.
  - (b) Write a note on Wireless Mouse.
  - (c) Explain in detail Dynamic RAM.
  - (d) Explain Architecture of Linux Operating System.
  - (e) Draw a flowchart to find the odd numbers between 1 to 100.
- 3.** Answer the following (any *four*) : [16]
- (a) Explain different features of MS-Office.
  - (b) Write a note on MS-Word.
  - (c) Explain Secondary Memory.
  - (d) Define Hardware and Software.
  - (e) Write a note on OMR.
- 4.** Answer the following (any *four*) : [16]
- (a) Explain in detail Hard disk.
  - (b) Write an algorithm to check wheather a given number is prime number or not.
  - (c) What is Internet ? Explain disadvantages of Internet.
  - (d) Write a note on Assembly language.
  - (e) How slides are created in MS-PowerPoint ?
- 5.** Answer the following (any *four*) : [16]
- (a) Explain different file extensions in windows.
  - (b) Write a note on MS-Access.
  - (c) Explain importance of Computer Network.
  - (d) Explain difference between Impact and Non-Impact Printer.
  - (e) Write a note on System Software.

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**[5263]-102**

**B.C.A. (Sem. I) EXAMINATION, 2017**

**102 : FINANCIAL ACCOUNTING**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Use of calculator is allowed.

1. What is Financial Accounting ? Explain the scope of Financial Accounting. [16]

*Or*

Define Accounting Principles. Explain features and limitations of Accounting principles. [16]

2. Journalise the following Transaction in the books of Moumita, Pune for March 2015 : [16]

1st Moumita started business by investing cash Rs. 50,000. She bought Goods Rs. 4,000 and Furniture of Rs. 500.

8th Purchased building for Rs. 10,000.

12th Purchased Goods on credit Rs. 2,500.

18th Paid cartage Rs. 20.

21st Sold Goods for cash Rs. 2,550.

23rd Sold Goods for cash to Avtar Rs. 240.

25th Deposited cash into Bank Rs. 8,000.

27th Withdraw from Bank Rs. 300 for private use.

P.T.O.

3. Enter the following transactions in the cash book of Bol Bol (having cash with cash and bank column for March, 2015) : [16]
1. Cash in hand Rs. 400 and bank Rs. 1,000.
  2. Sold Goods to Suresh for Rs. 600 and received Rs. 400 in part payment.
  3. Purchased Goods from Patel for Rs. 784 and paid the amount by issue of cheque.
  5. Transferred Rs. 500 from Private Bank A/c to Business Bank A/c.
  10. Issued a cheque of Rs. 200 to Bharat Bansode Furniture works for the furniture purchased in the month of Feb. 2015.
  12. Withdrew for personal use from Bank Rs. 100.
  14. Issued a cheque to petty cashier for Rs. 175.
  15. Withdrew for office use Rs. 500.
  18. Suresh and Co. informed that they paid directly into our Bank A/c, the remaining balance i.e. Rs. 200.
  19. Bank collected interest on investments and credited to our account Rs. 200. Bank charged 1% commission.
  20. Issued Goods against Fire for Rs. 40,000 and paid insurance premium 2% by cheque.
  21. For cash sales received a cheque from M/s Manik and Sons for Rs. 500 and deposited into the Bank A/c immediately.
  23. Cheque received from M/s Manik and Sons was dishonoured.
  25. Paid salary by cheque Rs. 300.
  30. Purchased Govt. Securities of Rs. 800 @ 98%.

4. The following Balances were extracted from the book of Tanuja on 31st March, 2015. You are required to prepare a Trading and Profit and Loss A/c and Balance Sheet on that date : [16]

**Trial Balance as on 31st March, 2015**

<b>Particulars</b>	<b>Debit (Rs.)</b>	<b>Credit (Rs.)</b>
Salaries	16,965	—
Wages	34,965	—
Manufacturing Expenses	10,455	—
Carriage Inward	980	—
Carriage Outward	2,150	—
Plant and Machinery	19,720	—
Furniture	9,480	—
Land	25,000	—
Goodwill	30,000	—
Insurance	4,175	—
Fuel and Power	1,276	—
S. Debtors	78,140	—
Factory Lighting	986	—
Opening Stock	34,170	—
Sales Return	3,170	—
Purchases	97,165	—
Discount	928	—
Bad debts	1,485	—
Interest	475	—
Cash	145	—
Bank	7,540	—

General Expenses	8,142	—
Motor Car	5,165	—
Selling Expenses	2,473	—
Capital	—	80,000
S. Creditors	—	54,300
Bank Overdraft	—	10,000
Purchases Return	—	1,000
Sales	—	2,56,850
Provision for Bad debts	—	2,000
	<u>3,94,150</u>	<u>3,94,150</u>

*Adjustments :*

- (1) Stock on 31st March, 2014 was Rs. 29,630.
- (2) Depreciation is to be charged on Plant and Machinery at 10%, Land 5% and Motor Car Rs. 1,000.
- (3) Write off Rs. 140 as bad debts.
- (4) Provide 2% Discount on Debtors and 10% on Creditors.
- (5) Sales outstanding Rs. 235.

**5.** Write short notes on (any *four*) : [16]

- (1) Limitations and Advantages of Computerised Accounting
- (2) Company Final Accounts
- (3) Accounting Standards
- (4) User of Accounting information
- (5) Advantages of Accounting
- (6) Accounting Packages.

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**[5263]-103**

**F.Y. B.B.A. (CA) (I Sem.) EXAMINATION, 2017**

**103 : PRINCIPLES OF PROGRAMMING AND ALGORITHMS**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory and carry equal marks.

(ii) Figures to the right indicate full marks.

**1.** Answer the following (any *eight*) : [8×2=16]

- (a) What is flowchart ?
- (b) What is recursion ?
- (c) What is sequential search ?
- (d) What is matrix ?
- (e) Explain Big-O notation.
- (f) Explain space complexity.
- (g) What is bubble sort ?
- (h) What is leap year ?
- (i) Explain an array.

**2.** Answer the following (any *four*) : [4×4=16]

- (a) Explain Time complexity with example.
- (b) Explain program development life-cycle.
- (c) Write an algorithm for factorial of given number.

P.T.O.

- (d) Write an algorithm to check given year is leap year or not.
- (e) Draw a flowchart to check given number is positive or negative.

**3.** Answer the following (any *four*) : [4×4=16]

- (a) Explain quick sort with example.
- (b) Compare Algorithm and Flowchart.
- (c) Draw a flowchart to calculate sum of digit of given number.
- (d) Draw a flowchart to find given number is prime or not.
- (e) Write an Algorithm to find maximum of an array.

**4.** Answer the following (any *four*) : [4×4=16]

- (a) Compare binary search and linear search.
- (b) Write characteristics of Algorithms.
- (c) Draw a flowchart to find given number is perfect or not.
- (d) Draw a flowchart of sum of first '*n*' natural number.
- (e) Write an Algorithm for transpose of matrix.

**5.** Answer the following (any *four*) : [4×4=16]

- (a) Explain symbol of flowchart.
- (b) Explain concept of recursion with example.
- (c) Write an Algorithm to determine given number is odd or even.
- (d) Write an Algorithm to find sum of all array elements.
- (e) Draw a flowchart to check given number is palindrome or not.



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**[5263]-104**

**B.C.A. (First Semester) EXAMINATION, 2017**  
**104 : BUSINESS COMMUNICATION**  
**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** All questions are compulsory.

1. Define communication. Explain in detail principles of effective communication. [16]

*Or*

What is Written Communication ? What are the advantages and limitation of written communication ?

2. What is Art of Listening ? Explain in detail barriers of listening. [16]

*Or*

What is Business letter ? Explain structure/layout of Business Letter.

3. (a) Draft an order letter to m/s Ashirwad Electronics Mumbai, from J.D. Electronics Sadashiv Peth, Pune, placing order for various types of T.V. sets. [8]

*Or*

Draft a circular letter from Classic Stores Hyderabad, announcing shifting their stores to new place.

- (b) Write a complaint letter to Siddharth Stores Kolhapur, on behalf of Rajashree Departmental MIDC, Pune regarding mistake in the invoice sent. [8]

*Or*

Draft a Report of a works Manager on the damage caused by a serious accident at the factory.

P.T.O.

4. Distinguish between Voicemail and Teleconferencing. [16]

*Or*

What is Job Application ? What are the contents in job application ?

5. Write short notes on (any *four*) : [16]

- (a) Process of Communication
- (b) Distinguish between verbal and Non-verbal Communication
- (c) Techniques of effecting Speaking
- (d) Limitation of Telegrams
- (e) Contents in enquiry letter
- (f) Notice and Agenda of meeting.

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**[5263]-105**

**B.C.A. (Sem. I) EXAMINATION, 2017**  
**105 : PRINCIPLES OF MANAGEMENT**  
**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) All questions carry equal marks.

1. What is meant by management ? “Management is what management does.” Discuss.

*Or*

Explain the Human Relations Theory as developed by Elton Mayo.

2. Define Planning. Explain its advantages and limitations.

*Or*

What is delegation of authority ? Explain the reasons for non-delegation of authority.

3. Write notes :

(a) Scientific management theory

(b) Features of a sound organization.

*Or*

What is leadership ? Distinguish between autocratic and democratic styles of leadership.

P.T.O.

4. What are the requirements of an effective control system ?

*Or*

Critically examine the Herzberg's two factor theory of Motivation.

5. Write short notes on (any *four*) :

(a) Causes of Stress

(b) Importance of Staffing

(c) Strategic Management

(d) Need of the Social Responsibility

(e) Management of Change

(f) Total Quality Management.

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**[5263]-201**

**F.Y. B.B.A. (CA) (Second Semester) EXAMINATION, 2017**

**201 : PROCEDURE ORIENTED PROGRAMMING USING 'C'**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) *All* questions are compulsory.

(ii) Figures to the right indicate full marks.

**1.** Answer the following (any *ten*) : [10×2=20]

- (1) Define variable. Give example.
- (2) Give syntax and example of :
  - (i) printf( )
  - (ii) getchar( ).
- (3) Give example of nested if-else statement.
- (4) Define function. Give example.
- (5) Define 2-dimensional array. Give example.
- (6) Give use of goto and exit statements.
- (7) List any *four* types of operator.
- (8) Define recursion. Give example.
- (9) Define string. Give example.

P.T.O.

- (10) What is union ? Give example.
- (11) What is command line argument ?
- (12) List different preprocessor directives.

**2.** Answer the following (any *four*) : [4×5=20]

- (1) Explain break and continue statement with example.
- (2) Explain call by value and call by reference.
- (3) What is storage class ? Explain types of storage classes.
- (4) What is structure ? Explain nested structure.
- (5) Explain the following functions with example :
  - (i) fprintf( )
  - (ii) fscanf( )
  - (iii) fread( )
  - (iv) fgetc( )
  - (v) putw( ).

**3.** Answer the following (any *four*) : [4×5=20]

- (1) Write a 'C' program to convert temperature from celcius to fahrenheit.
- (2) Write a 'C' program to check no. is Armstrong or not.
- (3) Write a 'C' program for multiplication of  $p \times q$  matrix.

(4) Write a 'C' program that displays the following pattern :

```
      1
    2 3 2
  3 4 5 4 3
4 5 6 7 6 5 4
5 6 7 8 9 8 7 6 5
```

(5) Write a 'C' program to copy contents of one file into another file.

4. Trace the output and justify (any *four*) : [4×5=20]

(1) main( )

```
{
    int X=100;
    printf("%d/n", 10+ X++);
    printf("%d/n", 10+ ++X);
}
```

(2) main( )

```
{
    int m=1;
    if(m==1)
    {
        printf("Delhi");
    }
    if(m==2)
```

```
printf("Chennai");
else
printf("Bangalore");
}
else;
printf("END");
}
```

```
(3) void test (int*a);
main( )
{
    int X=50;
    test(&X);
    printf("%d", X);
}
void test (int*a);
{
    *a=*a+50;
}
```

```
(4) main( )
{
    int j=1;
    for(; ;)
    printf("%d", j);
}
```



```
(5) main( )  
{  
    char s[ ]="Happy New Year";  
    printf("%s", s);  
    printf("\n%c", s[3]);  
    printf("\n%c", s[8]);  
}
```

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**[5263]-202**

**B.C.A. (Sem. II) EXAMINATION, 2017**  
**DATABASE MANAGEMENT SYSTEM—202**  
**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) Neat diagrams must be drawn wherever necessary.

**1.** Answer the following (any *four*) : [4×4=16]

- (a) Explain the role of a DBA.
- (b) Write a short note on Data Abstraction.
- (c) Explain Referential Integrity with suitable example.
- (d) Explain aggregate functions in SQL with examples.
- (e) What are the advantages and disadvantages of a DBMS ?

**2.** Answer the following (any *four*) : [4×4=16]

- (a) What are the anomalies of un-normalized database ?
- (b) List various DDL commands. Explain any *one* with example.

P.T.O.

- (c) What are the different types of relationship ?
- (d) Explain Data Models and explain any *one* in detail.
- (e) Explain select and project operations in Relational Algebra.

3. Attempt the following : [16]

Consider the following Entities and Relationship.

Employee (empno, empname, salary, commission, designation)

Department (deptno, deptname, location)

**Relationship** between Employee and Department is many-to-one.

**Constraints** : Primary key,

Salary should be  $> 0$ .

Create a RDB in 3NF and write queries in oracle :

- (a) Display all details of employees who are working at 'Pune' location.
- (b) Display department namewise list of employees.
- (c) Count the number of employees who are working in 'computer' department.
- (d) Display maximum salary for every department.
- (e) Display average salary for every designation.
- (f) Update commission for every employee by 5% for all department.

4. Answer the following (any *four*) : [4×4=16]

(a) Write a note on normalization.

(b) Explain the terms :

(1) Tuple

(2) Cardinality

(3) Relation

(4) RDBMS.

(c) Explain entity and attributes and explain its types.

(d) Explain primary key and foreign key with suitable example.

(e) Differentiate between Specialization and Generalization.

5. Attempt the following : [2×8=16]

(a) Design database for banking enterprise which records information about customers, employees of bank. A customer can be a depositor or a borrower.

An employee of the bank can be customer of bank.

There are two types of accounts, saving account and current account.

A database should provide the following details :

(i) Identify all entities

(ii) Identify all relationship

(iii) Draw E-R Diagram.

(b) Consider relational database :

Movie (mvno, mvname, release year)

Actor (actno, actname)

Movie and actor are related with many-to-many relationship.

Write relational algebraic expression for the following (any *four*) :

- (i) Display actorwise movie details.
- (ii) Display all actor details of movie 'Airlift'.
- (iii) Count all the movie names released in the year 2015.
- (iv) Add 'age' column to Actor table.
- (v) Display all movies of actor 'Amitabh'.
- (vi) Change the actor name from 'Ranbir' to 'John'.

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**[5263]-203**

**B.C.A. (Semester II) EXAMINATION, 2017**

**203 : ORGANISATIONAL BEHAVIOUR**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) Attempt any *five* questions.

(ii) *All* questions carry equal marks.

1. What is 'Organisational Behaviour' ? Explain the 'Fundamental Concepts' of Organisational Behaviour.
2. Define the term 'Values'. Explain 'Personal Values' and 'Organisational Values'.
3. Explain the concept 'Motivation' and 'Maslow's Need-Hierarchy' theory of motivation.
4. What is 'Personality' ? Explain 'Trait Theory' of personality.
5. Define the term 'Stress'. Explain the various sources of stress.
6. Define the term 'Stress Management'. Explain 'Organisational Level Stress Management Strategies'.

P.T.O.

7. What is 'Conflict' ? Explain 'Types/Levels of Conflicts'.
8. Write explanatory notes on (any *two*) :
- (a) Concept and Nature of Group
  - (b) Features of Team
  - (c) Nature of Organisational Change.

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**[5263]-204**

**F.Y. B.B.A. (CA) (Semester II) EXAMINATION, 2017**

**204 : COMPUTER APPLICATION IN STATISTICS**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) All questions carry equal marks.

(iii) Figures to the right indicate full marks.

(iv) Use of calculator is allowed.

**1.** Attempt any *four* of the following : [4×4=16]

(a) Differentiate between permutation and combination.

(b) A family of four brothers and three sisters is to be arranged for a photograph in one row. In how many ways can they be seated if no two sisters sit together.

(c) Write sample space for the following experiments :

(i) A coin is tossed till head occurs.

(ii) Ten seeds are planted and total number of seeds germinated are recorded.

P.T.O.



- (iii) A card is drawn from a well shuffled pack of playing cards and suit is noted.
- (iv) Life of an electric tube produced by a company.
- (d) Explain addition and multiplication principle of counting.
- (e) Find values of  $n$  and  $r$  if  ${}^n P_r = 1716$  and  ${}^n C_r = 286$ .
- (f) Three coins are tossed. What is the probability of getting :
  - (i) At least one tail
  - (ii) At most two tails.

2. Attempt any *four* of the following : [4×4=16]

- (a) Explain classical definition of probability. Also state addition theorem of probability.
- (b) Let  $X$  follows Binomial distribution with  $n = 6$  and  $p = 1/4$ . Find :
  - (i)  $P(X > 4)$
  - (ii)  $P(X \leq 1)$ .
- (c) Determine which of the following are deterministic and non-deterministic experiments :
  - (i) No. of accidents on a highway.
  - (ii) Water is heated upto  $100^\circ\text{C}$ .

- (iii) A ball is thrown in the sky.
- (iv) Sales target completed by a salseman.
- (d) A box contains ten articles of which two are defective. A random sample of three is drawn. Find probability that the sample contains :
  - (i) At most one defective.
  - (ii) At least one defective.
- (e) State probability mass function of a discrete uniform distribution. State its mean and variance.
- (f) Suppose A and B are mutually exclusive events for which  $P(A) = 0.3$ ,  $P(B) = 0.5$ . What is probability that :
  - (i) Both A and B occur.
  - (ii) Neither A nor B occurs.

**3.** Attempt any *four* of the following : [4×4=16]

- (a) Define the following terms :
  - (i) Exhaustive events
  - (ii) Sample space
  - (iii) Random experiment
  - (iv) Event.

- (b) Let A and B be two events with  $P(A) = 0.5$ ,  $P(A \cup B) = 0.8$ ,  $P(B) = P$ . Find P if :
- (i) A and B are independent.
- (ii) A and B are mutually exclusive.
- (c) Define Binomial distribution. State its mean and variance.
- (d) In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together.
- (e) Write a note on pseudo random number generator.
- (f) If  $P(A) = 0.6$ ,  $P(B) = 0.5$ ,  $P(A \cap B) = 0.3$ . Find :
- (i)  $P(A \cup B)$
- (ii)  $P(A' \cap B)$
- (iii)  $P(A' \cup B')$
- (iv)  $P(A' \cap B')$

4. Attempt any *four* of the following : [4×4=16]

- (a) State advantages and disadvantages of simulation.
- (b) Among 500 employees of a factory 200 are union members while others are not. Ten employees are selected at random for a special training. Using Binomial distribution find probability that exactly four of them are union members.
- (c) If two events are independent. Can they be mutually exclusive ? Justify your answer.

- (d) Probability that man will be alive 10 years hence is 0.5, and probability that his wife will be alive 10 years hence is 0.6. Find probability that after 10 years :
- (i) Both will be alive
  - (ii) Only wife will be alive.
- (e) Generate a random sample of size five using linear congruential generator :
- $$X_{i+1} = (3X_i + 6) \bmod 10 \text{ with } X_0 = 1.$$
- (f) Define Bernoulli distribution. State its mean and variance.

5. Attempt any *two* of the following : [2×8=16]

- (a) In a service station number of TV sets arrive for repairs follow Binomial distribution with parameters  $n = 6$ ,  $p = 0.4$ . Simulate number of TV sets coming for repair in five days. (Use calculator to generate random numbers.)
- (b) Four cards are drawn at random from a well shuffled pack of 52 cards. Find probability that :
- (i) Two cards are red and two are black
  - (ii) All cards are of different suits
  - (iii) All cards are of same suit
  - (iv) One is king.

- (c) A sweetmart has 8-types of sweets available. The demand ( $X$ ) for sweets is random variable with the following distribution.

$X$	$P(X)$
1	0.1
2	0.15
3	0.17
4	0.2
5	0.01
6	0.15
7	0.12
8	0.10

Simulate demand of sweets for 10 days using random numbers :

0.98, 0.314, 0.481, 0.133, 0.36, 0.293, 0.76,  
0.365, 0.444, 0.685.

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**[5263]-205**

**B.B.A. (CA) (Second Semester) EXAMINATION, 2017**

**205 : E-COMMERCE CONCEPTS**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**1. Answer the following (any *eight*)** **[8×2=16]**

- (i) What is Trojan horse ?
- (ii) What is shopping boats ?
- (iii) State any *two* uses of smart cards.
- (iv) Define Encryption.
- (v) What is Extranet ?
- (vi) What is E-cash ?
- (vii) Define Thread.
- (viii) What is hacking ?
- (ix) What is email ?
- (x) State types of domain.

**2. Attempt any *four* of the following :** **[4×4=16]**

- (i) Explain fund transfer in detail.
- (ii) Define Internet. State its advantages.

P.T.O.

- (iii) Explain ways of web promotion.
- (iv) Explain paperless billing.
- (v) Explain RTGS in detail.

3. Attempt any *four* of the following : [4×4=16]

- (i) Explain role of intranet in B2B application.
- (ii) Explain limitation to encryption solution.
- (iii) Explain working of digital envelop.
- (iv) Explain working of G2G application.
- (v) Explain domain name registrars in detail.

4. Attempt any *four* of the following : [4×4=16]

- (i) Explain working of e-business.
- (ii) Explain features of e-commerce.
- (iii) What is virus ? Explain its types.
- (iv) Explain various technical component of e-commerce.
- (v) What is online banking ? Explain it in detail.

5. Write short notes on (any *four*) : [4×4=16]

- (i) Need of e-payment
- (ii) C2A
- (iii) Intelligent card
- (iv) WWW
- (v) Digital signature.

Total No. of Questions—5]

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**[5263]-301**

**B.C.A./B.B.A. (CA) (III Sem.) EXAMINATION, 2017**

**301 : RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) *All* questions are compulsory.

(ii) *All* questions carry equal marks.

(iii) Draw a neat labelled diagram if necessary.

**1.** Solve the following : [8×2=16]

(a) What is cascadeless schedule ?

(b) List the state of Transaction.

(c) What is RDBMS ? Enlist any *two* product of RDBMS.

(d) What is PL/SQL ? List the data types of PL/SQL.

(e) List and define basic operations used to recover from failure.

(f) What is block ? List its types.

(g) What is deadlock ?

(h) What is trigger ? List the types of trigger.

**2.** Solve the following (any *four*) : [4×4=16]

(a) What are the features of oracle ?

P.T.O.



- (b) What is cursor ? Explain various attributes of cursor with example.
- (c) What is transaction ? Explain properties of transaction.
- (d) What are the problems in concurrent execution of transaction?
- (e) Write a short note on checkpoint.

**3.** Solve the following (any *four*) : [4×4=16]

- (a) Write a short note on storage types.
- (b) Explain, how deadlock is recovered.
- (c) What is serializability ? Explain conflict serializability with example.
- (d) What is exception handling ? Explain user defined exception with example.
- (e) Explain Validation Based Protocol.

**4.** Solve the following (any *four*) : [4×4=16]

- (a) Consider the following Relational Database :

Customer(Cust\_no, Cust\_name, Cust\_city)

Account(Acc\_no, Acc\_type, balance, Cust\_no)

Write a procedure which will take balance as a parameter and will display customer name having account balance greater than or equal to given balance.

(b) Consider the following relationship :

Publisher(P\_no, P\_name, P\_add)

Book(book\_no, book\_name, price, P\_no)

Write a function which will return total no. of books having price greater than 300.

(c) Consider the following Relational Database :

Party(partycode, partyname)

Politician(pno, pname, description, partycode)

Write a cursor which will display partywise details of politician.

(d) Consider the following Relational Database :

University(u\_no, u\_name, city)

College(c\_no, c\_name, city, establish\_yr, u\_no)

Write a trigger that restricts insertion of college record having year of establishment greater than current year.

(e) Write a package, which will consist of one function and one procedure.

Consider Relation :

Researcher(rno, rname, rcity)

Write a function which will return total no. of researcher from 'PUNE' city.

Write a procedure which will display details of given researcher.

5. Solve the following (any *four*) :

[4×4=16]

(a) Consider the following transaction :

<b>T<sub>1</sub></b>	<b>T<sub>2</sub></b>
Read (Z)	Read (X)
$Z = Z * 10$	Read (Z)
Write (Z)	$X = X + Z$
Read (Y)	Write (X)
Read (Z)	
$Y = Y + Z$	
Write (Y)	

Give *two* Non-Serial Schedules that are serializable.

(b) Consider the following transactions :

<b>T<sub>1</sub></b>	<b>T<sub>2</sub></b>
Read (A)	Read (B)
$A = A * 5$	$B = B * 5$
Write (A)	Write (B)
Read (B)	Read (A)
Read (C)	$A = A * 10$
$B = B * 10$	Write (A)
Write (B)	
$C = C * 5$	
Write (C)	

Give *two* Non-Serial Schedules that are serializable.

- (c) The following is the list of events in an inter-leaved execution of set  $T_1$ ,  $T_2$ ,  $T_3$  and  $T_4$  assuming 2PL. Is there a deadlock ? If yes. Which transactions are involved in deadlock ?

<b>Time</b>	<b>Transaction</b>	<b>Code</b>
$t_1$	$T_1$	Lock (A, X)
$t_2$	$T_2$	Lock (B, S)
$t_3$	$T_3$	Lock (A, S)
$t_4$	$T_4$	Lock (C, S)
$t_5$	$T_1$	Lock (B, S)
$t_6$	$T_2$	Lock (C, X)
$t_7$	$T_3$	Lock (D, X)
$t_8$	$T_4$	Lock (D, S)

- (d) The following is the list of Events in an inter-leaved execution of set  $T_1$ ,  $T_2$ ,  $T_3$  and  $T_4$  assuming 2PL. Is there a deadlock ? If yes, which transactions are involved in deadlock ?

<b>Time</b>	<b>Transaction</b>	<b>Code</b>
$t_1$	$T_1$	Lock (L, X)
$t_2$	$T_2$	Lock (M, X)
$t_3$	$T_3$	Lock (N, S)
$t_4$	$T_4$	Lock (L, S)
$t_5$	$T_1$	Lock (N, X)
$t_6$	$T_3$	Lock (L, S)
$t_7$	$T_2$	Lock (O, X)
$t_8$	$T_4$	Lock (M, S)

(e) The following are the Log entries as the time of system crash :

[Start Transaction, T<sub>1</sub>]

[Write\_item, T<sub>1</sub>, C, 200]

[Commit T<sub>1</sub>]

[Checkpoint]

[Start\_transaction, T<sub>2</sub>]

[Write\_item, T<sub>2</sub>, D, 100]

[Commit, T<sub>2</sub>]

[Start Transaction, T<sub>3</sub>]

[Write\_item, T<sub>3</sub>, D, 150]

[Write\_item, T<sub>3</sub>, C, 250] ← System Crash

If Deferred update technique with checkpoint is used, what will be the recovery procedure ?

Total No. of Questions—5]

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**[5263]-302**

**B.B.A. (C.A.) (Sem. III) EXAMINATION, 2017**

**DATA STRUCTURE USING C (302)**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

- N.B. :—**
- (i) All questions are compulsory.
  - (ii) All questions carry equal marks.
  - (iii) Assume suitable data, if necessary.

1. Attempt any *eight* of the following : [8×2=16]
- (a) What is use of (&) address operator and Dereferencing (\*) operator ?
  - (b) What is efficiency of linear search method ?
  - (c) What is Double Ended Queue ?
  - (d) Compare the efficiency of Bubble sort with Selection Sort.
  - (e) What is self referential structure ?
  - (f) What is polynomial ? How is it represented ?
  - (g) Differentiate between malloc( ) and calloc( ) function.
  - (h) How to measure performance of an algorithm ?
  - (i) Explain in brief, node structure of doubly circular linked list.
  - (j) What is strongly connected graph ?

P.T.O.

2. Attempt any *four* of the following : [4×4=16]

- (a) Write a 'C' program to accept and display polynomial.
- (b) What is graph ? How is it represented ? Explain any *one* technique in detail.
- (c) Explain different types of tree traversing techniques with an example.
- (d) Write a 'C' program to create and display circular singly linked list.
- (e) Write a function to insert a node at given position in doubly linked list.

3. Attempt any *four* of the following : [4×4=16]

- (a) Write a function for the intersection of two singly linked list.
- (b) Write a 'C' program for the implementation of dynamic queue.
- (c) Explain minimal spanning tree with an example.
- (d) Write a function to count the number of leaf nodes in a tree.
- (e) Sort the following data by using Selection Sort Technique :  
45, 78, 1, 3, 90, 32, 56, 76, 5.

4. Attempt any *four* of the following : [4×4=16]

- (a) Explain different types of asymptotic notations in detail.
- (b) Construct binary search tree for the following data :  
Mar, Dec, Jan, Sept, Jul, Oct, Feb, Aug.
- (c) Explain Heap sort technique with an example.

(d) Convert given infix expression into postfix expression :

(1)  $(A+B)*C/D\%E$

(2)  $(2+3)/1*9-3$

(e) Differentiate between Stack and Queue.

5. Attempt any *four* of the following : [4×4=16]

(a) Explain DFS with an example.

(b) What is searching ? Explain binary search method with an example.

(c) Write a function which compares the contents of two stacks and display message accordingly.

(d) Explain LL and RR rotations with an example.

(e) What is an algorithm ? Explain its characteristics.



Total No. of Questions—5]

[Total No. of Printed Pages—4

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**[5263]-303**

**S.Y. B.C.A./S.Y. B.B.A. (CA) (III Sem.) EXAMINATION, 2017**

**303 : INTRODUCTION TO OPERATING SYSTEM**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) Neat diagram must be drawn wherever necessary.

(iii) Figures to the right indicate full marks for the question.

**1. Attempt any *eight* from the following :** [8×2=16]

(a) Define the term Dispatcher.

(b) List the services provided by operating system.

(c) What is process ?

(d) Define Rollback.

(e) Define Preemptive scheduling.

(f) List basic operations on file.

(g) What is deadlock ?

(h) What is claim edge ?

(i) What is semaphore ?

(j) List system calls related to communication.

P.T.O.

**2.** Attempt any *four* from the following : [4×4=16]

- (a) Explain deadlock prevention strategies.
- (b) Explain all scheduler types with suitable diagram.
- (c) Explain address binding in detail with diagram.
- (d) Explain block and character devices.
- (e) CPU Burst time (in milliseconds)

P<sub>1</sub>            3

P<sub>2</sub>            2

P<sub>3</sub>            1

Calculate average waiting time using Round Robin CPU scheduling algorithm (Time quantum is 2 millisecond).

**3.** Attempt any *four* from the following : [4×4=16]

- (a) Explain linked allocation in detail.
- (b) List and explain different attributes related to file.
- (c) Differentiate Sequential Access and Direct Access.
- (d) List and explain scheduling criteria.
- (e) Assume there are total 200 tracks that are present on each surface of disk, if request queue is 98, 183, 37, 122, 14, 124, 65, 67 and initial position of the head is 53. Apply FCFS Disk scheduling and calculate total head movement.

4. Attempt any *four* from the following : [4×4=16]
- (a) Describe the application of I/O interfaces in detail.
  - (b) Explain different methods of recovery from deadlock.
  - (c) Explain logical and physical address.
  - (d) Explain multilevel feedback queue Algorithm.
  - (e) Explain swapping of two process using disk as a backing store with diagram.

5. Attempt any *four* from the following : [4×4=16]
- (a) What is fragmentation ? Explain internal and external fragmentation.
  - (b) Differentiate between MVT and MFT job scheduler.
  - (c) Describe solution for critical section problem.
  - (d) Consider the following reference string :  
1, 2, 3, 2, 1, 5, 2, 1, 6, 2, 5, 6, 3, 1, 3, 6, 1, 2, 4, 3.  
How many page fault occurs for the following algorithm with 3 page frames :
- (i) LRU
  - (ii) FIFO.
- (e) Consider the system with the following process :

$$P = \{P_0, P_1, P_2, P_3, P_4\}.$$

There are 10 instances of type A, 5 instances of type B, 7 instances of type C.

The allocation and Maximum demand matrix are as the follows :

Process	Allocation			Maximum			Available		
	A	B	C	A	B	C	A	B	C
P <sub>0</sub>	0	1	0	7	5	3	3	3	2
P <sub>1</sub>	2	0	0	3	2	2			
P <sub>2</sub>	3	0	2	9	0	2			
P <sub>3</sub>	2	1	1	2	2	2			
P <sub>4</sub>	0	0	2	4	3	2			

Answer the following using Banker's Algorithm :

- (1) Is the system in safe state ?
- (2) If yes, give safe sequence.

Total No. of Questions—5]

[Total No. of Printed Pages—5

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**[5263]-304**

**B.C.A. (Third Semester) EXAMINATION, 2017**

**304 : BUSINESS MATHEMATICS**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Use of calculator is allowed.

1. (A) Attempt any *one* of the following : [6]

(a) Income of A and B are in the ratio 6 : 7. The income of B and C are in the ratio 4 : 5. If C's income is Rs. 560, find the income of A and B.

(b) If  $a + b : a - b = 9 : 5$ , find the value of  $a : b$ .

(B) Attempt any *two* of the following : [10]

(a) A cycle worth of Rs. 15,000 is purchased on installment basis under 8 equal annual installments including compound interest at 8% p.a. Find the amount of installment.

(b) Ravi bought a car for Rs. 86,000 and sold for Rs. 92,000 through a broker who charges commission of 2% on purchase and 3% on sales. Find total gain on the transaction.

(c) In how many years will Rs. 35,000 will amount to Rs. 87,500 at 10% p.a. simple interest ?

P.T.O.

2. (A) Attempt any *one* of the following : [6]

(a) A sample of 50 litres of glycerin is found to be adulterated to the extent of 30%. Find how much pure glycerin should be added to bring down the percentage of impurity to 6%.

(b) An article was sold for Rs. 2,425 resulted in a loss of 3%. What was cost price of an article ?

(B) Attempt any *two* of the following : [10]

(a) Pravin borrows Rs. 50,000 for 12 years at 5% p.a. compound interest. How much does he repay ? (Given :  $(1.05)^{12} = 1.7458$ )

(b) Define :

(i) Continued Proportion

(ii) Simple interest.

(c) If  $a : b = 3 : 2$ ,  $b : c = 4 : 5$ , find  $a : c$ .

3. (A) Attempt any *one* of the following : [6]

(a) Find value of  $x$  if :

$$\begin{vmatrix} x & 3+x & 4+x \\ 1 & 2 & -1 \\ 2 & 1 & 3 \end{vmatrix} = 0.$$

(b) Define :

(i) Zero matrix

(ii) Square matrix

(iii) Diagonal matrix.

(B) Attempt any *two* of the following : [10]

(a) If  $A = \begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix}$ ,  $B = \begin{bmatrix} 2 & 3 \\ -4 & 9 \end{bmatrix}$  such that  $2A - 3B + C = 0$ , find matrix C.

(b) Show that the matrix  $A = \begin{bmatrix} 1 & 2 \\ 1 & 3 \end{bmatrix}$  satisfies the equation  $A^2 - 4A + I = 0$ .

(c) Find inverse of the matrix  $A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$ .

4. (A) Attempt any *one* of the following : [6]

(a) Obtain IBFS of the following transportation problem by using Vogel's approximation method :

	Destinations					Supply	
	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>		
Origin	A	2	11	10	3	7	4
	B	1	4	7	2	1	8
	C	3	9	4	8	12	9
Demand	3	3	4	5	6		

(b) Solve the following system by using matrix cofactor method :

$$4x + 7y - 9 = 0$$

$$5x - 8y + 15 = 0.$$

(B) Attempt any *two* of the following : [10]

(a) Obtain IBFS to the following transportation problem by North-West corner rule :

	<b>To</b>			<b>Supply</b>
<b>From</b>	2	7	4	5
	<b>3</b>	<b>3</b>	<b>1</b>	<b>8</b>
	5	4	7	7
	1	6	2	14
<b>Demand</b>	7	9	18	

(b) Obtain IBFS to the following transportation problem by Matrix minima method :

	<b>Warehouses</b>				
Plants	A	B	C	D	Supply
P <sub>1</sub>	3	4	9	2	23
P <sub>1</sub>	6	5	8	8	27
Demand	12	13	15	10	

(c) 60 litres of diesel is bought at Rs. 8 per litre. If 10% is lost in transit, at what rate should the remainder be sold to earn 10% profit on the whole ?

5. (A) Attempt any *one* of the following : [6]

(a) Solve the following LPP graphically.

Maximize :

$$Z = 10x + 15y$$

Subject to :

$$12x + 5y \leq 2700$$

$$5x + 10y \leq 2000$$

$$x \geq 0, y \geq 0.$$



(b) Let A and B be two types of fertilizers available at Rs. 30 per kg. and Rs. 50 per kg. respectively. Fertilizer A contains 20 units of potash, 10 units of nitrogen and 40 units of phosphorus. Fertilizer B contains 15 units of potash, 20 units of nitrogen, and 10 units of phosphorus. The requirement of potash, nitrogen and phosphorus is at least 1800, 1700, 1600 units. Formulate it as LPP in order to minimize the total purchasing cost.

(B) Attempt any *two* of the following : [10]

- (a) Suresh borrowed Rs. 1750 from Ramesh for 5 months. Ramesh charged him Rs. 43.75 as simple interest. At what rate was the interest reckoned ?
- (b) Explain North-West corner rule to obtain IBFS to the transportation problem.
- (c) Three scooters were sold through an agent for Rs. 20,000, Rs. 16,800 and Rs. 15,000 respectively. The rate of commission were 15% on the first and 12% on the second. If on the whole, the agent received a commission of 14%, find the commission received by him on the third scooter.

Total No. of Questions—5]

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**[5263]-305**

**B.C.A. (Third Semester) EXAMINATION, 2017**

**305 : SOFTWARE ENGINEERING**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) *All* questions are compulsory.

(ii) *All* questions carry equal marks.

**1.** Attempt the following (any *eight*) : [16]

- (a) State and draw symbols of E-R Diagram.
- (b) Define software engineering.
- (c) State any *two* disadvantages of waterfall model.
- (d) Define Elements of a system.
- (e) State the objective of testing.
- (f) Define the term system.
- (g) What is structured interview ?
- (h) Define interface of a system with example.
- (i) Explain any *two* roles of system analysis.

**2.** Answer the following (any *four*) : [16]

- (a) Explain top-down approaches of Integration Testing.
- (b) Explain Spiral model in detail.
- (c) Explain McCall's quality factors in detail.
- (d) Explain SRS Documentation in detail.
- (e) What is cohesion ? Explain different types of cohesion in detail.
- (f) State and explain the qualities of good design.

P.T.O.

3. (a) Design a I/P screen layout for Purchase Order entry. [8]  
(b) Draw a Decision tree and table for the following case : [8]  
A co-operative Bank XYZ will grant loan under the following conditions : If the customer has an account with the bank and has no outstanding loan. If the customer has an account with the bank with some outstanding loan amount, then the loan shall be granted if special approval is obtained. Loan is rejected in all other cases.
4. Write short notes on (any *four*) : [16]  
(a) Software Characteristics  
(b) Structured Chart  
(c) Validation and Verification Testing.  
(d) Data Dictionary  
(e) Fact Gathering Techniques.
5. Draw a context level DFD, 1st level DFD and identify all entities for “College Admission System”. [16]

Total No. of Questions—5]

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**[5263]-401**

**B.C.A. (Fourth Semester) EXAMINATION, 2017**

**401 : OBJECT ORIENTED PROGRAMMING USING C++**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

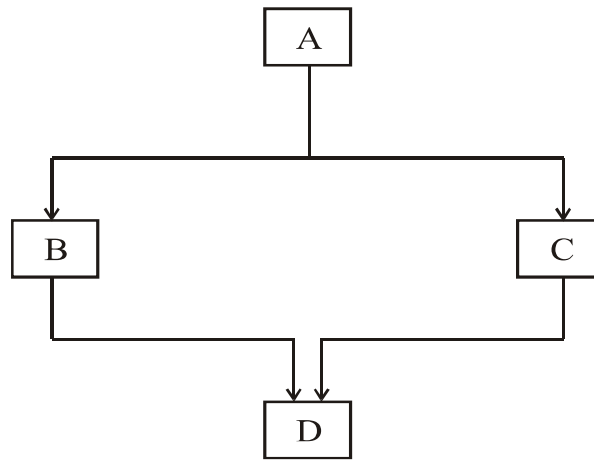
1. Attempt any *eight* of the following : [8×2=16]
- (a) Define object with example.
  - (b) Enlist user defined data types in C++.
  - (c) Differentiate between default and parameterised constructor.
  - (d) Why do we make a function pure virtual function ?
  - (e) List various classes available for file operations.
  - (f) Justify : “Constructor can have different name as the class”.
  - (g) What will be the output of the following :  

```
cout<<setw(10)<<setfill("*")<<12345
```
  - (h) Define abstract class
  - (i) List the operators that cannot be overloaded in C++.
  - (j) What is inheritance ? State its advantages.

P.T.O.

2. Attempt any *four* of the following : [4×4=16]

- (a) Give the general format of class and state the significance of private, public and protected access specifiers.
- (b) What is function overloading ? Explain with the help of suitable example.
- (c) Differentiate between memory management in C and C++.
- (d) Write a C++ program for :



Class A, B, C, D has one integer data member p, q, r, s respectively. Write appropriate member functions in each class to accept and display data. Also write member function in Class D to perform  $s = p + q * r$ .

- (e) Write a C++ program to calculate area and perimeter of a rectangle. (Use default argument).

3. Attempt any *four* of the following : [4×4=16]

- (a) Explain the use of the following with syntax :  
try, catch, throw.

- (b) What do you mean by function template ? Write a function template for bubble sort.
- (c) Explain copy constructor with suitable example.
- (d) Write and explain various functions used for unformatted console I/O operations.
- (e) Write a C++ program to create a class book (bookname, author, price). Write necessary member functions to accept and display details of 3 books. Also display book having maximum price. (Use array of objects).

4. Attempt any *four* of the following : [4×4=16]

- (a) Explain the functions used for manipulation of file pointers.
- (b) Write a note on static data members.
- (c) Explain with suitable example operator overloading for unary operators using friend function.
- (d) Write a C++ program to perform multiplication and division operation on two integer numbers by using inline function.
- (e) Trace the output of the following program and explain it. Assume there is no syntax error :

```
#include<iostream.h>
Class Alpha
{
    public;
    int x;
    Alpha(int a)
    {
        x=a;
        cout<<"\n Alpha Initialized :" <<x;
```

```

    }
    ~ Alpha( )
    {
        cout<<"\n Alpha Destroyed :" <<x;
    }
};
int main( )
{
    Alpha A1(10);
    Alpha A2(10);
}

```

5. Attempt any *four* of the following : [4×4=16]

- (a) Explain the different ways to define member function of a class with suitable example.
- (b) What is scope resolution operator ? Give its syntax and explain any *one* application of it with example.
- (c) Write a C++ program to read characters from a file. Create one file to store all uppercase characters and another file to store all lowercase characters. Also display contents of both files.
- (d) Consider the following C++ class :

```

Class Matrix
{
    int M[3][3];
public
    //member function
}

```

Write necessary member functions to accept and display matrix. Also write member function to overload "\*" (Multiplication) operator. ( $M_3 = M_1 * M_2$ )

- (e) Trace the following program and explain its output. Assume there is no syntax error.

```
#include<iostream.h>
int main( )
{
    int a=100;
    int & b=a;
    b=b+200;
    Cout<<"a="<<a<<"b="<<b;
    a+=200;
    Cout<<"a="<<a<<"b="<<b;
}
```



Total No. of Questions—5]

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**[5263]-402**

**S.Y. B.C.A. (Semester IV) EXAMINATION, 2017**

**402 : PROGRAMMING IN VISUAL BASIC**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) *All* questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Give illustration wherever necessary.

1. Explain the following property setting (any *eight*) : [16]
- (a) Property used to enable textbox control.
  - (b) Property used to set background image of form.
  - (c) Property used to count number of item in the listbox control.
  - (d) Property used to draw circle from shape control.
  - (e) Property used to sort items in combobox.
  - (f) Property used to clear all the items from listbox.
  - (g) Property used to Hide Data control at runtime.
  - (h) Property used to set value of checkbox.
  - (i) Property used to specify text when the mouse is paused over the control.
  - (j) Property to set job order for the control of the form.

P.T.O.

**2.** Answer the following (any *four*) : [16]

- (a) Explain briefly ADO Data Control.
- (b) Define implicit and explicit variable declaration ? Explain the use of option explicit.
- (c) Explain scroll bar control with its property.
- (d) Explain any *four* string functions with syntax and example.
- (e) Differentiate between option button and check box.

**3.** Attempt the following (any *four*) : [16]

- (a) Write a VB program to find factorial of given number.
- (b) Write a VB program for addition of two matrices.
- (c) Write a menu driven program in VB to perform the following :
  - (i) Area of Square
  - (ii) Area of Rectangle.
- (d) Write a VB program to transfer the selected elements from List 1 and List 2.
- (e) Write a VB program to check whether a year is leap year or not.

**4.** Attempt the following (any *two*) : [16]

- (a) How to create menu ? Explain with an example.

- (b) Explain do-until and until-do looping structures used in VB with syntax and example.
- (c) Write a VB program to accept the student details from user and store the details into the database (Don't use standard control) student having rollno, name, class as a fields.

**5.** Write short notes on (any *four*) : [16]

- (a) MDI
- (b) Progress Bar
- (c) Picture Box
- (d) Data Types
- (e) Features of VB6.0.

Total No. of Questions—5]

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**[5263]-403**

**B.B.A. (CA) (Sem. IV) EXAMINATION, 2017**

**403 : COMPUTER NETWORKING**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) *All* questions are compulsory.

(ii) Neat diagram must be drawn wherever necessary.

**1.** Attempt any *three* of the following : [3×5=15]

- (a) What is Computer Network ? Explain application of Computer Network.
- (b) What are mode of communication in Networking ?
- (c) Explain difference between Server Based LANs and Peer-to-Peer LANs.
- (d) What is Topology ? Explain difference between Bus and Mesh Topology.

**2.** Attempt any *three* of the following : [3×5=15]

- (a) Explain TCP and UDP Protocol in detail.
- (b) List out the responsibilities of transport layer in ISO-OSI reference model.
- (c) Differentiate between connection-oriented services and connectionless services.
- (d) Explain the structure of twisted pair cable.

P.T.O.

- 3.** Attempt any *three* of the following : [3×5=15]
- (a) What is WWW ? Explain architecture of WWW.
  - (b) Explain Radio waves as a wireless transmission.
  - (c) What are the different categories of Fast Ethernet ?
  - (d) Write down steps to install NIC and explain it.
- 4.** Attempt any *three* of the following : [3×5=15]
- (a) What is Wireless LAN ? Draw Frame Format IEEE 802.11.
  - (b) Differentiate between Packet-Filter Firewall and Proxy Firewall.
  - (c) Explain Token Ring with Frame Format.
  - (d) What is AP ? Explain BSS and ESS in detail.
- 5.** Write short notes on (any *four*) : [20]
- (a) HTTP
  - (b) Line of sight propagation
  - (c) BNC connector
  - (d) ICMP and IGMP
  - (e) Bridge.

Total No. of Questions—5]

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**[5263]-404**

**B.C.A. (Sem. IV) EXAMINATION, 2017**

**404 : ENTERPRISE RESOURCE PLANNING AND MANAGEMENT**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :-** (i) All questions are compulsory.

(ii) Neat diagram must be drawn wherever necessary.

**1. Answer in short :**

**[2×8=16]**

- (i) Define — ERP
- (ii) Define — Enterprise
- (iii) Define — BPR
- (iv) Define — SAP
- (v) Define — EDI
- (vi) Define — OLAP
- (vii) Define — CRM
- (viii) Define — SCM.

P.T.O.

- 2.** Answer the following (any *four*) : [4×4=16]
- (a) Discuss the evaluation of packaged software solutions.
  - (b) Explain in brief the various EDI standards.
  - (c) What is ERP ? Explain characteristics and features of ERP.
  - (d) Explain SAP tool — Jd Edwards.
  - (e) Define supply chain management and its benefits.
- 3.** Answer the following (any *four*) : [4×4=16]
- (a) What is Enterprise ? Explain role of Enterprise.
  - (b) Explain relation of EIA and ERP.
  - (c) Explain business process reengineering in detail.
  - (d) Explain Hidden cost in ERP implementation.
  - (e) State the various EDI services.
- 4.** Answer the following (any *four*) : [4×4=16]
- (a) What is OLAP ? Explain in detail.
  - (b) Discuss client server architecture of an Enterprise.
  - (c) What is scalability ? Explain the role of scalability in SAP.
  - (d) What is the relation between ERP and E-commerce ?
  - (e) What is future of EDI ?

**5.** Write short notes on (any *four*) :

[4×4=16]

- (a) Establishing Customer Enterprise Link
- (b) Role of Vendors for ERP
- (c) ALE Integration
- (d) People Soft
- (e) Future of ERP.



Total No. of Questions—6]

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**[5263]-405**

**B.C.A. (Sem. IV) EXAMINATION, 2017**  
**405 : HUMAN RESOURCE MANAGEMENT**  
**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) Question No. 6 is compulsory.

(ii) Answer any *four* from the remaining.

(iii) Figures to the right indicate full marks.

(iv) Draw figures wherever necessary.

1. What is 'Human Resource Management' ? Explain in detail the importance and functions of HRM. [15]
2. What is 'Performance Appraisal' ? Explain in detail the various methods of 'Performance Appraisal'. [15]
3. What is 'Selection' ? Explain in detail the selection procedure of candidates. [15]
4. Explain in detail the methods of wage payment. [15]
5. Define the term 'Discipline'. Explain the objectives and principles of 'Discipline'. [15]

P.T.O.

**6.** Write short notes on (any *four*) : [20]

- (a) Advantages of E-Learning
- (b) Nature and Advantages of E-HRM
- (c) Importance of Training
- (d) Nature and Procedure of Grievance
- (e) Fringe benefits
- (f) Promotion and demotion policy.

Total No. of Questions—5]

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**[5263]-501**

**B.C.A. (Semester V) EXAMINATION, 2017**

**501 : JAVA PROGRAMMING**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

- N.B. :—** (i) All questions are compulsory and carry equal marks.  
(ii) Assume suitable data if necessary.  
(iii) Figures to the right indicate full marks.

1. Attempt any *eight* : [8×2=16]
- (a) What is the use of 'super' keyword ?
  - (b) What is finalize( ) method ?
  - (c) List Access specifiers used in Java.
  - (d) Define wrapper class.
  - (e) What is Exception ?
  - (f) List Layout Managers used in .awt.
  - (g) Define Map in Collection framework.
  - (h) Write down the difference between String and StringBuffer class.
  - (i) List any *two* Listeners used in event handling.
  - (j) List any *two* built-in Exceptions in Java.

P.T.O.

2. Attempt any *four* : [4×4=16]

- (a) Write a java program to accept names of  $n$  cities from user and display them in ascending order.
- (b) Explain Exception handling in Java with an example.
- (c) Explain runtime polymorphism in Java with example.
- (d) Differentiate between abstract class and interface.
- (e) Write a program to create an interface shape. Create *two* classes circle and rectangle implementing that interface. Display area of circle and area of rectangle.

3. Attempt any *four* : [4×4=16]

- (a) Write a short note on Collection Framework.
- (b) Explain Event Delegation model in Java.
- (c) Explain 'final' keyword in Java.
- (d) Write a Java program to create a class Employee(eno, ename, age, salary). If age is less than 18 then raise an exception 'Age Not Valid Exception' else display the record.
- (e) Write a Java program to display "Hello Java" with Font-Arial, Foreground Color-Blue, Background-Red on the Frame.

4. Attempt any *four* : [4×4=16]

- (a) Explain Applet Life Cycle.
- (b) What is the need of user-defined package ? Explain with example.

- (c) Write down the difference between throw and throws clause in Exception handling.
- (d) Write a program to accept the details of 'n' employees(ename, salary) from the user, store them into the Hashtable and display the Employee name having maximum salary.
- (e) Write a program to create package TYBCA which has two classes Subject and Marks. Subject class is to accept Subjects and Marks class is to accept marks. Create main class which will use package and calculate total and percentage.

5. Attempt any *four* : [4×4=16]

- (a) Write a Java program using AWT to display current date and time and also wish the user accordingly. (If it is am, wish user "Good Morning").
- (b) What is Adaptor class ? Explain use of Adaptor classes in Java with an example.
- (c) Explain Inheritance in Java.
- (d) Explain FileInputStream and FileOutputStream classes in Java.
- (e) Write a Java program to accept filename from commandline. Find its total size in bytes. Display error message if file does not exist.

Total No. of Questions—5]

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**[5263]-502**

**B.B.A. (CA) (Sem. V) EXAMINATION, 2017**

**WEB TECHNOLOGIES (502)**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

**1. Solve any *eight* of the following :** [8×2=16]

- (a) Define <a> and <div> tag.
- (b) Define basic structure of HTML.
- (c) List border properties in CSS.
- (d) Define Array global variable.
- (e) Explain physical and logical tags in HTML.
- (f) List any *two* string functions in JavaScript.
- (g) What is selector and list types of selector ?
- (h) What is the use of <span> tag ?
- (i) Explain <pre> tag with example.

**2. Solve any *four* of the following :** [4×4=16]

- (a) Write a JavaScript program to check given number is perfect *or* not.

P.T.O.

(b) Write a HTML code to display the following frame :

one		
two	three	
four	five	six

(c) Write a PHP script to check whether a given number is palindrome *or* not.

(d) Write a note on DOM.

(e) Write a note on HTTP.

3. Solve any *four* of the following : [4×4=16]

(a) Explain array in PHP.

(b) What is Image Mapping ? Explain its types.

(c) Explain types of CSS in detail.

(d) Write a HTML code to design the following table :

Train Time Table			
TNO	TNAME	Arrival Time	Departure Time
101012	Nashik Express	2.00 pm	4.30 pm

(e) Write a PHP script to find sum of digits of a given number.

4. Solve any *four* of the following : [4×4=16]

(a) What are the characteristics of PHP ?

(b) Explain any *two* HTML form elements.

- (c) Write a JavaScript program to check whether a given number is prime or not.
- (d) Write a JavaScript code to validate E-mailId.
- (e) Differentiate between indexed versus associative array.

**5.** Solve any *four* of the following : [4×4=16]

- (a) Explain ordered and unordered list.
- (b) Write short note on Internet.
- (c) Explain type casting and type Juggling in PHP.
- (d) Write the purpose of explode function.
- (e) Write a short note on padding an array.



Total No. of Questions—5]

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**[5263]-503**

**T.Y. B.C.A. (V Sem.) EXAMINATION, 2017**

**503 : DOT NET PROGRAMMING**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

- N.B. :—**
- (i) *All* questions are compulsory.
  - (ii) *All* questions carry equal marks.
  - (iii) Draw suitable diagram wherever necessary.
  - (iv) Design proper GUI.

**1.** Attempt any *eight* of the following : [8×2=16]

- (a) What is garbage collection ?
- (b) Explain any *two* date and time functions in VB.Net.
- (c) What is difference between Write( ) and WriteLine( ) ?
- (d) Enlist any *four* types of errors in VB.Net.
- (e) Define namespace. List any *two* namespace in DotNet.
- (f) What is purpose of exit( ) statement ?
- (g) Enlist any *two* events of keyboard.
- (h) Write any *two* benefits of .Net framework.
- (i) What is MSIL ?
- (j) What is JIT (Just In Time) compiler ?

P.T.O.

2. Attempt the following (any *four*) : [4×4=16]

- (a) What is exception handling ? Explain with suitable example.
- (b) Explain any *two* control structures in VB.Net with example.
- (c) Design GUI and write a code in VB.Net using Rich Textbox :
  - ⇒ Add Font Size in Combo Box (any **5**).
  - ⇒ Select Size and Change text size in Text Box.
- (d) Write a VB.Net program to check whether entered string is palindrome or not.
- (e) Design GUI and write a code for the following :  
(using ADO.Net) (use SQL — server to create db)
  - ⇒ Create table patient(Pid, Pname, Contact, Disease)
  - ⇒ Insert records into table.
  - ⇒ Display appropriate message in messageBox.

3. Attempt the following (any *four*) : [4×4=16]

- (a) Define Interface. Explain with suitable example.
- (b) Explain Access specifies in VB.Net.
- (c) Write a VB.Net program to move text “Savitribai Fule Pune University” continuously from left to right.
- (d) Write a VB.Net program to access a character from keyboard and check whether it is vowel or not. Also display the case of character (using console application).

- (e) Design GUI and write code for the following :
- ⇒ Create a table Teacher(Tid, Tname, Subject)
  - ⇒ Insert the records(Max : 5)
  - ⇒ Search record of a Teacher who teaches 'VB.Net' subject and display result in Gridview.
- (Use MS Access to create db)

4. Attempt the following (any *four*) : [4×4=16]

- (a) Explain MyBase and MyClass keywords in detail.
- (b) Define CLR and explain services provided by CLR.
- (c) Design GUI and write a code for the following :
  - ⇒ Pick a date from DateTimePicker control and display day, month and year in separate textboxes.
- (d) Write a program in VB.Net to do the following operation on ComboBox Control :
  - ⇒ Add Item
  - ⇒ Remove Item
  - ⇒ Sort Item.
- (e) Define Assembly and explain types of assembly.

5. Write short notes on (any *four*) : [4×4=16]

- (a) Crystal Report
- (b) Function overloading
- (c) ProgressBar
- (d) ADO.Net architecture
- (e) Data types.

Total No. of Questions—5]

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**[5263]-504**

**B.C.A. (V Sem.) EXAMINATION, 2017**

**504 : OBJECT ORIENTED SOFTWARE ENGINEERING**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

**1.** Attempt any *eight* of the following : [8×2=16]

(a) Define model of system.

(b) Consider a single object "student" and draw object diagram with possible attributes.

(c) What is lifeline ?

(d) Define transition.

(e) List the object oriented design methods.

(f) What is UML ? List any *two* views of UML.

(g) Define leaf class.

(h) Define swimlanes.

(i) What are the advantages of iterative development ?

(j) Define node.

P.T.O.

2. Attempt any *four* of the following : [4×4=16]
- (a) Define things. Explain any *one* thing in UML with example.
  - (b) Explain dependency relationship along with stereotypes.
  - (c) What is generalization ? Explain include relationship with use case.
  - (d) Explain any *two* phases in unified process.
  - (e) Explain Jacobson method in detail.
3. Attempt any *four* of the following : [4×4=16]
- (a) How to identify the elements of an object ?
  - (b) Explain role concept with example.
  - (c) Draw collaboration diagram for ATM system.
  - (d) Discuss object oriented analysis process.
  - (e) What is package ? Explain it with import and export stereotypes.
4. Answer any *four* of the following : [4×4=16]
- (a) Explain architecture of UML.
  - (b) Draw an object diagram for Hospital management system.
  - (c) State the purpose of component diagram ? Explain it with different notations with an example.
  - (d) What is requirement ? Explain in detail with type and categories.
  - (e) Explain fork and join in detail.

5. Attempt the following : [16]

Library management system is library management software for purpose of monitoring and controlling the transactions in a library.

In this case study on the library management system gives us the complete information about the library and the daily transactions done in a library. We need to maintain the record of new and retrieve the details of books available in the library which mainly focuses on basic operations in a library like adding new member, new books, and up new information, searching books and members and facility to borrow and return books.

The report generation facility of library system helps to get a good idea of which are the books borrowed by the members, makes users possible to generate hard copy.

Consider above situation, draw the following UML diagram (any *four*) :

- (a) Class diagram
- (b) Use-case diagram
- (c) Sequence diagram
- (d) Activity diagram
- (e) State-chart diagram.

Total No. of Questions—5]

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**[5263]-601**

**T.Y. B.C.A. (Sixth Semester) EXAMINATION, 2017**

**601 : ADVANCED WEB TECHNOLOGIES**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :-** (i) *All* questions are compulsory.

(ii) Figures are required whenever necessary.

**1.** Attempt the following (any *eight*) : [8×2=16]

- (a) What is serialization ?
- (b) Name any *two* functions to extract basic information about classes in php ?
- (c) Name any *two* variables of global array.
- (d) How to check whether a variable is set with the session ?
- (e) Name any *two* parameters of `mysql_connect( )`.
- (f) Explain the function to execute the query with parameters.
- (g) Name any *two* elements of XML document structure.
- (h) Which are the types of parser in XML ?
- (i) Which are the parts of XML-RPC ?
- (j) Enlist the methods of XML HTTPREQUEST object.

P.T.O.

**2.** Attempt the following (any *four*) : [4×4=16]

- (a) What is introspection ? Explain any *two* introspective function.
- (b) What is self-processing form ? Explain with the help of program.
- (c) What is PEAR-DB library ? Explain its function with example.
- (d) Explain XML document structure.
- (e) Write a PHP script to upload the file and display its information (Use `$_FILES`).

**3.** Attempt the following (any *four*) : [4×4=16]

- (a) Explain WSDL document structure.
- (b) Explain AJAX web application model.
- (c) Write a php program to accept two strings from user and check whether entered strings are matching or not (use sticky form concept).
- (d) Write a php program to accept student details (rno, name, class) and store them in student table. Print them in sorted order of name on the browser in table format.
- (e) Write PHP script to create a CD catalog using XML file.

**4.** Attempt the following (any *four*) : [4×4=16]

- (a) Explain cookie with example.



- (b) Explain simple XML with example.
- (c) What is database ? Explain different functions in php to connect to the mysql.
- (d) Write an Ajax program to display list of games stored in an array on clicking OK button.
- (e) Write php program to select name of fruits he/she likes (using multivalued parameters).

**5.** Write short notes on (any *four*) : [4×4=16]

- (a) Constructor
- (b) Setting response header
- (c) SOAP
- (d) XML parser
- (e) Session.

Total No. of Questions—5]

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**[5263]-602**

**B.C.A. (Semester VI) EXAMINATION, 2017**

**602 : ADVANCE JAVA**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

- N.B. :—**
- (i) All questions are compulsory.
  - (ii) Figures to the right indicate full marks.
  - (iii) Answer of sub-questions of each question should be attempted at one place. It should not be written separately.

- 1.** Attempt the following (any *eight*) : [8×2=16]
- (a) What are different types of Servlets ?
  - (b) What is accept( ) method in networking ?
  - (c) Give Syntax of loading DriverManager.
  - (d) What is Introspection ?
  - (e) What is RMIRegistry ?
  - (f) What is JAR File ?
  - (g) What is difference between CGI and Servlet ?
  - (h) What is Prepared\_Statement ?
  - (i) What is UnicastRemoteObject ?
  - (j) What is getLocalHost( ) Method ?

P.T.O.

2. Attempt the following (any *four*) : [4×4=16]
- (a) Explain JDBC Architecture with suitable diagram.
  - (b) What is Thread ? Explain different ways to create Thread in program ?
  - (c) Explain RMI Architecture with suitable diagram.
  - (d) Write a JDBC program to search all details of employee(empid, ename, city) who are living in city 'Pune'.
  - (e) Write a multithreading program in java to display all the vowels from a given String. (Use Thread Class)
3. Attempt the following (any *four*) : [4×4=16]
- (a) What is Statement ? Explain its different types.
  - (b) Explain Thread Life Cycle with suitable diagram.
  - (c) Explain Socket and ServerSocket.
  - (d) Write a java program which will display name and priority of current thread. Change name of Thread to MyThread and priority to 2. Display the details of Thread.
  - (e) Write a JDBC program to accept the details of Author (Aid, Aname, Bname, and Price) and store it into the database (Use PreparedStatement interface.)
4. Attempt the following (any *four*) : [4×4=16]
- (a) What is Bean ? Explain advantages of Bean.
  - (b) What is stub and skeleton ? Explain.

- (c) Explain how Session Tracking is achieved Servlets ?
- (d) Write a Multithreading program in java to display the number's between 1 to 100 continuously in a TextField by clicking on button. (Use Runnable Interface).
- (e) Write a JSP program to calculate sum of first and last digit of a given number. Display sum in Red Color with font size 18.

5. Attempt the following : [2×8=16]

- (a) Write a Socket program in java in which client accept a number, send it to the server and check whether it is prime or not.

*Or*

Write socket based java program to accept message from client converts the message into all uppercase letters and sends back the same to the client. Write both client and server programs.

- (b) Write a JSP script to accept the details of Student (RNo, SName, Gender, Computer\_Knowledge, and Class) and display it on the browser. Use appropriate controls for accepting data.

*Or*

Write a program for making a registration form which collects Id, Name, Address and email address send this data to a Servlet that display it.

Total No. of Questions—5]

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**[5263]-603**

**B.C.A. (Sem. VI) EXAMINATION, 2017**

**603 : RECENT TRENDS IN I.T.**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) All questions are compulsory.

(ii) All questions carry equal marks.

(iii) Draw a neat diagram wherever necessary.

**1. Define the terms :**

**[8×2=16]**

(a) Define the term metrics.

(b) Define fragmentation.

(c) What is allocation ?

(d) What is cryptography ?

(e) Define the term DES.

(f) What is green computing ?

(g) List the types of OLAP.

(h) What is data cleaning ?

P.T.O.

**2.** Answer the following (any *four*) : [4×4=16]

- (a) Describe Software Quality Management in detail.
- (b) Write on :
  - (1) Homogenous Distributed Database System
  - (2) Heterogenous Distributed Database System.
- (c) What is Data Warehouse ? Write on Architecture of Data Warehouse.
- (d) Distinguish between private key and public key cryptography.
- (e) Describe cloud computing model in detail.

**3.** Answer the following (any *four*) : [4×4=16]

- (a) What is Requirement Analysis ? Describe steps of requirement analysis in detail.
- (b) Write on Architecture of Distributed Database.
- (c) Differentiate Standalone and Distributed Database.
- (d) Describe in detail advantages and disadvantages of Data Warehouse.
- (e) What is Neural Network ? Describe need and applications of neural network.

**4.** Answer the following (any *four*) : [4×4=16]

- (a) What is Soft Computing ? Describe its applications.
- (b) Explain substitution cipher techniques in detail.

- (c) What is Pre-processing ? Describe its need in detail.
- (d) What is Distributed Database System ? Describe the needs for building Distributed Database.
- (e) Describe the steps in Prototyping Model.

5. Answer the following (any *four*) : [4×4=16]

- (a) What is object oriented modeling ? Describe in detail.
- (b) What is Data Replication ? Describe its types in detail.
- (c) Write on the Process of Data Warehouse Design.
- (d) What is Mobile Computing ? Describe its applications in detail.
- (e) Describe the components of Distributed Database.

Total No. of Questions—5]

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**[5263]-604**

**T.Y. B.C.A. (Sem. VI) EXAMINATION, 2017**

**604 : SOFTWARE TESTING**

**(2013 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 80**

**N.B. :—** (i) *All* questions are compulsory.

(ii) Figures to the right indicate full marks.

**1.** Attempt the following (any *eight*) : [8×2=16]

(i) Define measure in software metric.

(ii) Define Debugging.

(iii) What is Gray-Box testing ?

(iv) State all the factors of Testability of Software.

(v) Explain the advantages and disadvantages of sandwich approach of integration.

(vi) What is Stub ?

(vii) Why is there need of Test Automation ?

(viii) Define Validation Testing.

(ix) Explain sub-system testing.

(x) Explain TSL.

P.T.O.



2. Attempt any *four* of the following : [4×4=16]
- (i) Explain Acceptance testing in detail.
  - (ii) Explain Boundary-value analysis.
  - (iii) Explain all the testing principles in detail.
  - (iv) Explain Behavioural testing in detail.
  - (v) Explain Tmeter as a testing tool in detail.
3. Attempt any *four* of the following : [4×4=16]
- (i) Explain Testing Process in detail with diagram.
  - (ii) Explain bottom-up approach of integration testing.
  - (iii) Explain function-oriented metric.
  - (iv) Explain how testing of GUIs is done.
  - (v) Explain Load Runner as a testing tool.
4. Attempt any *four* of the following : [4×4=16]
- (i) Explain the Big-Bang approach of Integration testing.
  - (ii) Explain documentation testing in detail.
  - (iii) Give difference between load and stress testing.
  - (iv) Explain cyclometric complexity with example. Calculate and show independent paths using cyclometric complexity.
  - (v) Explain Tunit as a testing tool.

5. Write short notes on (any *four*) :

[4×4=16]

- (i) Performance Testing
- (ii) Branch-Coverage Criteria
- (iii) Unit Testing
- (iv) Security Testing
- (v) Rational Robot.