M.Sc. (Part–II) Semester–III (CBCS) Examination
COMPUTER SCIENCE
(Client Server Computing)
Paper–3MCS3

Time : Three Hours] [Maximum Marks : 80

Note :— (1) **All** questions are compulsory.

(2) Assume suitable data wherever necessary.

1. (A) Differentiate between TCP/IP and UDP. 7

   (B) Write Java program to demonstrate use of TCP socket. 7

OR

2. (A) Describe proxy server in detail. 7

   (B) Explain socket class provided by Java. 7

3. (A) What are different types of JDBC drivers ? What is JDBC-ODBC bridge ? Explain. 7

   (B) Write JDBC program to insert data into MySQL/Oracle database. Assume suitable table. 7

OR

4. (A) Explain various interfaces in JDBC. 7

   (B) What is prepare statement ? Explain with suitable example. 7

5. (A) What is servelet ? Explain the life cycle of servelet. 7

   (B) What are cookies ? Write a servelet which reads and write cookies. 6

OR

6. (A) Explain :

   (i) Get

   (ii) Post. 6

   (B) Explain any four methods of HHP servelet request. 7

7. (A) Discuss different features of Java script. 7

   (B) Write Java script code to display factorial or a given number, using dialog box. 6

OR

8. (A) State and explain any three methods and properties of date object in Java script. 7

(B) Explain different Dialog boxes in Java script. 6

9. (A) What is RMI Package ? Explain with example. 7

(B) How to built client server application in RMI ? Explain. 6

OR

10. (A) Explain :

(i) Stub

(ii) Skeleton. 6

(B) Write and explain client server RMI application for finding area of triangle. 7

11. (A) What is JSP ? Explain its features. 7

(B) What is Bean ? Explain bean scope in detail. 6

OR

12. (A) What are expressions in JSP ? Explain with example. 7

(B) What is Bean ? How to set and get properties of beans ? Explain with suitable example. 6

M.Sc. Semester—III (CBCS Scheme) Examination

COMPUTER SCIENCE

(Computer Graphics)

Paper—3 MCS 2

Time : Three Hours] [Maximum Marks : 80

N.B. :— (1) Use suitable data wherever necessary.
(2) Illustrate your answer with the help of neat sketches.
(3) Use of mobiles or programmable devices is not allowed.

1. (A) Write and explain Bresenham's algorithm for generation of line segment. 13

(B) Describe the general form for the equation of the line passing through following pair of points :

(i) (1, 0) and (7, 2)

(ii) (2, 3) and (4, 2). 2

OR

2. (A) Explain the following display devices :

(i) Raster display

(ii) Plotter

(iii) DVST

(iv) Plasma panel

(v) Liquid crystal display

(vi) Vector refresh display. 12

(B) For the following pair of lines, state whether they intersect or not, if they do give the co-ordinates of the point of intersection :

(i) $y = x$ and $y = 2x + 6$

(ii) $y = x + 4$ and $y = 2x + 6$ 3

3. Derive and explain rotation of an object about an arbitrary point. 13

OR

4. (A) Write an algorithm LOAD-POLYGON (I, EDGES) to retrieve polygon side information from the display file. 8

(B) Explain scaling transformation with example. 5

5. (A) Derive and explain viewing transformation matrix. 7

(B) Write an algorithm CLIP-BOTTOM (OP, X, Y) for clipping against the lower boundary of the polygon. 6

OR

6. (A) What is image transform ? Write the Algorithm SET-IMAGE-TRANSFORMATION (SEGMENT-NAME, SX, SY, A, TX, TY) for the image transformation parameters of a segment. 7

(B) What is meant by Clipping ? Explain in brief the clipping against all four Windows Boundaries. 6

7. What is parallel projection in 3D ? Derive the parallel projection matrix in 3D. 13

OR

8. (A) Write an algorithm PICK-SEARCH (PICK, X, Y) for simulating pick with a Locator. 10

   (B) What is perspective projection ? 3

9. (A) Explain the concept of Minima test. 6

   (B) How to compare two triangles ? Explain with example. 7

OR

10. (A) Explain the concept of Geometrical Sorting. 7

    (B) Explain in detail Franklin algorithm. 6

11. (A) Explain the concept of interpolation process. 7

    (B) Explain different colour model. 6

OR

12. (A) What is meant by transparency ? Explain in detail. 6

    (B) Explain the concept of B-Splines in detail. 7

M.Sc. (Part—II) Semester—III (C.B.C.S.) Examination

COMPUTER SCIENCE

3 MCS 1 Data Mining and Data Warehousing

Time : Three Hours] [Maximum Marks : 80

Note :— (1) Assume suitable data wherever necessary.

(2) Illustrate your answers with the help of neat sketches.

(3) Use of mobile or any other programmable devices are not allowed.

1. (A) Explain meaning of noise in data mining. Explain any one method of removing noise from the data. 8

(B) Why transformation is necessary in the data mining ? Explain transformation with example. 6

OR

2. (A) Give the role of data processing in data mining. Give one example of data processing in data mining. 6

(B) Write notes on the following :

(i) Data Reduction

(ii) Data Cleaning 8

3. (A) What do you mean by data generalization ? Explain data generalization in data warehouse. 7

(B) Explain architecture of Data Warehouse and its implementation. 6

OR

4. (A) How schema is defined in data warehouse ? Explain snow-fleck schema with example. 6

(B) What is data cube ? Explain data cube computation with example. 7

5. (A) Explain following terms in association mining :

(i) Confidence

(ii) Support

How it is calculated ? 8

(B) How constraints are used to define association rule ? Explain constraint based association mining. 6

OR

6. (A) How association and correlation are used in mining data ? Explain. 8

(B) Explain frequent itemset mining with example. 6

7. (A) How nonlinear regression are used in prediction mining ? Explain with example. 7

(B) Explain rule base classification with example in data mining with example. 6

OR

8. (A) Explain measurement of accuracy and error in prediction mining. 7

(B) Explain issues in classification and prediction mining. 6

9. (A) Give the characteristics of biological data. How sequence patterns are used in mining biological data ? 6

(B) Write note on the following methods used in clustering :

(i) Partitioning method

(ii) Hierarchical method 7

OR

10. (A) What is concept of distance in clustering ? How distances are measured in cluster minings ? 7

(B) Explain any one algorithm used in model based clustering method in mining. 6

11. (A) Explain the term Graph Mining. State its importance in Social Network analysis. 7

(B) Explain the concept text and web data. 6

OR

12. (A) Define mining object with example. 6

(B) State data mining application. 7

M.Sc. (Part—II) Semester—III (C.B.C.S. Scheme) Examination

3MCS4 (2) : COMPUTER SCIENCE

(Theory of Computation)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) Assume suitable data wherever necessary.

(2) Illustrate your answer with the help of neat sketches.

(3) Use of mobile or any other programmable devices are not allowed.

1. (A) Explain :

(i) Regular Expression

(ii) ϵ-moves. 6

(B) Construct DFA equivalent to the NFA ({p, q, r, s}, (0, 1}, 8, p, {q, s}) :

δ	0	1
p	q, s	q
q	r	q, r
r	s	p
s	–	p

8

OR

2. (A) What is Finite Automata ? State and explain its applications. 6

(B) Describe sets denoted by following Regular expression :

(i) $(11 + 0)^* (00 + 1)^*$

(ii) $(1 + 01 + 001)^*$ 8

3. (A) Let L be any subject of O^*. Prove that L^* is regular. 7

(B) What is pumping lemma for regular sets ? State and explain its applications. 7

OR

4. (A) What is two-way finite Automaton ? Explain. 5

(B) Which of the following languages are regular sets ? Prove your answer.

(i) $\{O^{2n} \mid n \geq 1\}$

(ii) $\{O^n \mid n \text{ is prime}\}$

(iii) $\{XX^R \mid X \text{ is } (0 + 1)^*\}$. 9

5. (A) Construct a PDA accepting L :

$L = \{wcw^R \mid w \text{ in } (0 + 1)^*\}$. 7

(B) What is GNF ? Explain. 6

OR

6. (A) Explain :

(i) Useless symbols

(ii) CNF. 6

(B) What is Derivation tree ? Explain. 7

7. (A) What is Turing Machine ? Explain. 6

(B) Construct a Turing Machine for Addition. 7

OR

8. (A) State and explain Church's Hypothesis. 6

(B) State and explain the applications of Turing Machine. 7

9. (A) What is DPDA ? Explain. 7

(B) Show that context sensitive languages are closed under :

(i) Union

(ii) Intersection. 6

OR

10. (A) What is Decidability of problems ? Explain. 7

(B) What are context sensitive languages ? Explain. 6

11. (A) What is PCP ? Explain. 7

(B) State and explain applications of Post Correspondence Problem. 6

OR

12. (A) What are the properties of Recursive languages ? Explain. 7

(B) What is Universal Turing Machine ? Explain. 6