This question paper contains 3 printed pages.

Your Roll No. .....

Sl. No. of Ques. Paper: **8750** **GC-4**

Unique Paper Code : **12295201**

Name of Paper : **Spatial Information Technology**

Name of Course : **B.A. (Hons.) CBCS**

Semester : **II/IV**

Duration : **3 hours**

Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

NOTE:— *Answers may be written either in English or in Hindi or in but the same medium should be used throughout the paper.*

टिप्पणी:— *इस प्रश्नपत्र का उत्तर अंग्रेज़ी या हिन्दी किसी एक भाषा में दीजिए; लेकिन सभी उत्तरों का माध्यम एक ही होना चाहिए।*

Answer all questions.
All questions carry equal marks.

सभी प्रश्नों के उत्तर दीजिए।
सभी प्रश्नों के अंक समान हैं।

1. Discuss different elements of GIS.

जी०आई०एस० के विभिन्न तत्वों का वर्णन कीजिए।

Or **(अथवा)**

Trace the historical development of GIS.

P.T.O

जी०आई०एस० के ऐतिहासिक विकास की रूपरेखा प्रस्तुत कीजिए।

2. Differentiate between raster and vector data structures.

रास्टर एवं वेक्टर आकंड़ा संरचनाओं में अन्तर स्पष्ट कीजिए।

Or (अथवा)

Define projection and discuss its significance in the process of registration.

प्रक्षेपण को परिभाषित कीजिये और रजिस्ट्रेशन प्रक्रिया में इसके महत्व की विवेचना कीजिए।

3. Describe the different techniques of digitization, data attachment and data transformation.

डिजिटाइजेशन, आँकड़ा संलग्न एवं आँकड़ा रूपान्तरण की विभिन्न तकनीकों का वर्णन कीजिए।

Or (अथवा)

Discuss the techniques of data analysis and map layout.

आँकड़ा विश्लेषण एवं मानचित्र प्रदर्शन तकनीकों का वर्णन कीजिए।

4. Discuss in detail the network analysis.

तंत्र विश्लेषण की विस्तृत व्याख्या कीजिए।

Or (अथवा)

Discuss and differentiate between raster and vector overlays.

रास्टर एवं वेक्टर ओवरले का वर्णन करते हुए अन्तर स्पष्ट कीजिए।

5. Evaluate the significance of Spatial Information Technology.

स्थानिक सूचना तकनीक के महत्व का मूल्यांकन कीजिए।

Or (अथवा)

Discuss the application of Spatial Information Technology in urban studies.

नगरीय अध्ययनों में स्थानिक सूचना तकनीक की प्रायोगिकता का वर्णन कीजिए।

This question paper contains 6 printed pages.

Your Roll No. .....

Sl. No. of Ques. Paper : **8176** IIC

Unique Paper Code : **62341201**

Name of Paper : **Database Management Systems**

Name of Course : **B.A. (Prog.) Computer Applications**

Semester : **II**

Duration : **3 hours**

Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Question No. 1 is compulsory.

Attempt any five questions from Q. Nos. 2 to 8.

(a) Describe different types of relationships in the context of a relational data model with the help of a suitable example. 3

(b) Differentiate DELETE and DROP SQL commands with the help of an example. 3

(c) A database consists of following relations:

```
EMPLOYEE(EMP_CODE,EMP_NAME,JOB_CODE)
JOB (JOB_CODE, JOB_DES)
```

Identify and describe primary key and foreign key(s) in the above relations. 4

(d) Write the SQL command that will not abort the changes being made to a relational table `Employee`. 2

(e) Illustrate insertion anomaly with a suitable example. 3

P. T. O.

(f) What do you understand by referential integrity rule? Illustrate with the help of suitable example. 2

(g) Give an SQL command to add a new attribute `Email` with data type `varchar (20)` in the relational table `Employee`. 2

(h) A database consists of the relation `Customer`:

```
Customer (Cust_Code, Cust_Name,
Region_Code, DOB, Age)
```

where `cust_code` is the primary key and age is the derived attribute. Describe the derived attribute and also draw an ER diagram for the same. 4

(i) Refer the following table to give the output of the given SQL command on the table `CUSTOMER`:

```
SELECT *
FROM CUSTOMER
WHERE Cust_Age>25 and Cust_Age<30:
```

CUSTOMER		
Cust_id	Cust_Name	Cust_Age
1	Ram	32
5	Hari	27
2	Kamna	25
7	Suresh	24
3	Rajesh	23
6	Komal	22
4	Chatana	25

1

2. (a) Describe the different components of a database system. 1

(b) Give the output of the given SQL command on the tabel STUDENT:

(i)
```
SELECT MAX (AGE), MIN (FEES)
        FROM STUDENT;
```

(ii)
```
SELECT NAME
    FROM STUDENT
        WHERE NAME LIKE "R%;
```

STUDENT

ID	NAME	AGE	ADDRESS	FEES
1	Ramesh	32	Ahmedabad	2000-00
2	Rakesh	27	Bhopal	8500-00
3	Kamal	25	Delhi	1500-00
4	Chatan	25	Mumbai	6500-00
5	Mukesh	24	Indore	10000-00
6	Raju	23	Kota	2000-00
7	Komal	22	Pune	4500-00

Suppose you are given the following requirements for a database for the India Cricket League (ICL):

(a) The ICL has many TEAMS.

(b) Each team has a `team_id` (unique), `team_name`, `city`, `coach_name` and `captain_name`.

(c) Each PLAYER belongs to only one team

(d) Each player has a `player_id` (unique), `player_name`, `position` (such as batsman, bowler, and all-rounder) and `team_id`.

(e) A Match is played between teams.

P.T.O.

(f) Each match has match_id (unique), team_id date and score.

Construct an ER diagram for the ICL database. 10

4. (a) What is Network data model? Give any two disadvantages of the network model. 4

(b) Describe DBMS functions:

(i) Data integrity management

(ii) Backup and recovery management. 6

5. Consider the database SALES with the tables Salesperson. Write SQL queries for the following:

Saleperson (Saleperson_id, Saleperson_name, Region_id, city, Sales, Sex,)

Region (Region_id, Region_name) 10

(a) Find the name of the Salesperson_name who works for north region.

(b) Find all Salesperson_name in the database according to their city.

(c) Find the Salesperson_name and Region_id that gets the maximum Sales.

(d) Find the Regions_name and cities where average sales per Salesperson are greater than 550.

(e) Find the total number of Salespersons in north region, in which the Salesperson operates. 10

6. Using the relations Course and Marks, given below, find the result of the following operations:

(f) Each match has `match_id (unique)`, `team_id` `date` and `score`.

Construct an ER diagram for the ICL database. 10

4. (a) What is Network data model? Give any two disadvantages of the network model. 4

(b) Describe DBMS functions:

(i) Data integrity management

(ii) Backup and recovery management. 6

5. Consider the database SALES with the tables `Salesperson`. Write SQL queries for the following:

`Saleperson (Saleperson_id, Saleperson_name, Region_id, City, Sales, Sex,)`

`Region (Region_id, Region_name)` 10

(a) Find the name of the `Salesperson_name` who works for north region.

(b) Find all `Salesperson_name` in the database according to their `city`.

(c) Find the `Salesperson_name` and `Region_id` that gets the maximum `Sales`.

(d) Find the `Regions_name` and cities where average sales per `Salesperson` are greater than 550.

(e) Find the total number of `Salespersons` in north region, in which the `Salesperson` operates. 10

6. Using the relations `course` and `Marks`, given below, find the result of the following operations:

(a) PRODUCT of COURSE and MARKS

(b) DIFFERENCE OF COURSE AND MARKS

(c) UNION of COURSE and MARKS

(d) JOIN OF COURSE AND MARKS on equal course code

(e) SELECT C_code= 'C98'

(Note : use the relation MARKS)

Relation Course

C_Code	C_Name
C21	English
C32	Maths
C33	Economics
C50	Accounting
C56	History
C81	M.I.S

Relation Marks

C_Code	C_Name
C21	English
C25	E.V.S.
C33	Economics
C34	Pol. Sc.
C50	Accounting
C81	M.I.S
C86	Hindi
C98	German

3. (a) Consider the relation EMPLOYEE (emp_id,

`firstname, middlename, lastname, email`). List and describe the *required* and *optional attributes*. 4

(b) Give any *three* advantages of the DBMS over file systems. 6

8. (a) Describe 3NF. When is a table said to be in 3NF? Illustrate with the help of an example. 4

(b) Differentiate between centralized and distributed databases. 4

(c) Consider the following relational table: 2

STUDENT

STD_ID	STD_NAME	Contact	Address	City
1	Anil	9933445566	A4	Delhi
2	Deepika	9988776655	B12	Mumbai
3	Sapna	8899776655	C12	Lucknow
4	Gaytri	9911223344	I12/14	Delhi
5	Umesh	9977665544	I133/89	Pune
6	Shyam	9922334455	B3	Jaipur
7	Anita	9933445566	C9	Mumbai

Give the output on execution of each of the following SQL commands on the table customer:

```
SELECT COUNT (DISTINCT city) FROM
STUDENT;
```

`firstname, middlename, lastname, email`). List and describe the *required* and *optional attributes*. 4

(b) Give any *three* advantages of the DBMS over file systems. 6

8. (a) Describe 3NF. When is a table said to be in 3NF? Illustrate with the help of an example. 4

(b) Differentiate between centralized and distributed databases. 4

(c) Consider the following relational table: 2

STUDENT

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1	Anil	9933445566	A4	Delhi
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3	Sapna	8899776655	C12	Lucknow
4	Gaytri	9911223344	I12/14	Delhi
5	Umesh	9977665544	I133/89	Pune
6	Shyam	9922334455	B3	Jaipur
7	Anita	9933445566	C9	Mumbai

Give the output on execution of each of the following SQL commands on the table customer:

```
SELECT COUNT (DISTINCT city) FROM
STUDENT;
```

This question paper contains 6 printed pages.

Your Roll No. .....

S. No. of Paper : 8177 **HC**
Unique paper code : 62341201
Name of the paper : **Database Management Systems**
Name of course : **B.A. (Prog.) Computer Applications**
Semester : **II**
Duration : **3 hours**
Maximum marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Question No. 1 is Compulsory.
*Answer any **five** questions from Question Nos. 2 to 8.*

1. (a) What do you mean by the term data dictionary? 2

(b) Consider the following relational table: 3

Customer

Cust_ID	Cust_Name	Contact	Address	City
1	Aarti	9933445566	A4	Janak Puri
2	Deepak	9988776655	B12	Pitam Pura
3	Sapna	8899776655	C12	Ashok Vihar
4	Gaytri	9911223344	112/14	Janak Puri
5	Uma	9977665544	1133/89	Ashok Vihar
6	Shyam	9922334455	B3	Ashok Vihar
7	Anita	9933445566	C9	Janak Puri

Give the output on execution of each of the following SQL commands on the table **Customer**:

P. T. O.

i. `SELECT COUNT(City) FROM Customer;`

ii. `SELECT COUNT(DISTINCT City) FROM Customer;`

(c) What is a business rule? How does identifying and documenting business rules help in database design? 3

(d) Give an SQL command to create a relational table `Student` having the following attributes: 2

Attribute	Data Type
Roll_No	Integer (3) *primary key*
Name	VARCHAR (max 25 characters)
Age	Number (2)
DOB	Date

(e) Consider an entity **Car** with attributes **Car_Reg, Car_Year, Model, Car_Color**. 3

(Note: **Car_Reg** is the primary key and **Car_Color** is a multivalued attribute)

Draw an E-R diagram for the entity **Car**.

(f) Illustrate the use of referential integrity rule with the help of an example. 2

(g) Given a relation: 2

PRODUCT (PCode, P_Desc, P_Pdate, P_Price)

Write an SQL command to display all the products in ascending order of **P_Price**.

(h) What do you mean by insertion anomaly? Illustrate with the help of an example. 2

(i) What is a *PROJECT* operator? 3

Give the output when the **PROJECT** operator is applied on both the attributes **F_Name** and **L_Name** for the following table:

Salesman

ID	F_Name	L_Name	Age	Total_Sal
101	Shobha	Gupta	28	200000
102	Ankit	Saxena	30	50000
103	Sudhir	Vij	35	250000
104	Madhur	Sharma	27	150000

(j) Consider the table **Employee** 3

Employee

Emp_ID	Emp_Name	D_Code	Salary
1010	Akshay	45	25000
1020	Ankita	32	40000
1030	Geeta	37	23000
1040	Sakshi	27	35000

Differentiate between the following SQL Commands

i. **Delete** From **Employee**;

ii. **Drop** Table **Employee**;

(a) Describe any three advantages of DBMS. 6

(b) What are derived attributes? Illustrate with the help of an example. 4

3. Consider the database for a hospital with a set of patients and a set of medical doctors. The database maintains a record of various tests conducted on each patient:

Patient (**PP#**, **PName**, **Insurance**, **DD#**)

Doctor (**DD#**, **DName**, **Specialization**)

Test (**PP#**, **TestName**, **Date**, **Time**)

Construct an E-R diagram for a hospital with the following constraints:

i. A **doctor** may treat many **patients** but a **patient** is under the supervision of only one **doctor**.

ii. Many **patients** may go for the same **test** and many **tests** may be prescribed to a **patient**.

4. (a) Give an overview of the network data model. Give two disadvantages of the network model.

(b) A database contains the entities **Painter** and **Paintings**. Is the relationship between the **Painter** and **Painting** (1:M) or (1:1)? Justify your answer. Draw an ER diagram for this scenario.

5. Consider the following tables: 10

Order (**OrderID**, **CustID**, **Order_Date**, **Qty**, **Delivery_Date**)

Customer (**CustID**, **CustName**, **City**)

Write SQL commands to:

i. Display all the details of the `order` with `customer name` and `city` where the order quantity is greater than 50.

ii. Display all the details of the `customer` whose `name` starts with 'R'.

iii. Increase the `quantity` of all the orders by 5.

iv. Insert a row in `Customer` table corresponding to the attribute values `10, 'Akash'` and `'New Delhi'` respectively.

v. Add a new attribute (*i.e.* column) `Remarks` with data type varchar(25) in the table `Order`.

---

10 Consider the following relation instances *R1* and *R2* having the same schema

Relation *R1*

Emp_Id	Emp_Name
118	Anuj
112	Sumati
200	Arun
202	Ram

Relation *R2*

Emp_Id	Emp_Name
115	Anita
205	Varuna
202	Ram
118	Anuj

P. T. O.

Find the result of the following operations:

i. ***R2*** *UNION* ***R1***
ii. ***R2*** *DIFFERENCE* ***R1***
iii. ***R1*** *INTERSECT* ***R2***
iv. ***R1*** *PRODUCT* ***R2***
v. *SELECT* ***Id*** < 150
(Note: use the relation ***R2***)

7. (a) Given a database with following relations:

Product(P_Code, P_Desc, P_Price, V_Code)

Vendor(V_Code, V_Name, V_Address, V_Contact)

Identify primary and foreign key for each relation. Make suitable assumptions and state them.

(b) Differentiate between the following:
i. DDL and DML.
ii. Data and Information

(c) What do you understand by cardinality?

8. (a) Describe second normal form with a suitable example

(b) Describe the following DBMS functions:
i. Security management
ii. Data transformation and presentation.

This question paper contains 4 printed pages.]

Your Roll No.....

No. of Question Paper : 8254 HC

Unique Paper Code : 62343414

Name of the Paper : Search Engine Optimization

Name of the Course : **B.A. (Prog.) Computer Application : SEC**

Semester : IV

Duration : 2 Hours Maximum Marks : 25

Instructions for Candidates

Write your Roll No. on the top immediately on receipt of this question paper.

Attempt any **three** questions from **Section B.**

SECTION A

(i) In a URL "http://www.facebook.com", www is known as (1)

(a) Sub Domain

(b) Domain

(c) Domain Name

(d) Domain Name System

P.T.O.

(ii) Phrases containing over 4+ words that make search results highly specific is known as : (1)

(a) Short tail Keyword

(b) Long tail Keyword

(c) Bigtail Keyword

(d) Small tail Keyword

(iii) Which of the following URL has proper length and file structure : (1)

(a) SWOT friendly URL

(b) SEO friendly URL

(c) Backlinks

(d) Both (a) & (b)

(iv) Which tool is used to improve the ranking of local listing in a search : (1)

(a) Google pigeon update

(b) Bing update

(c) HTML update

(d) Netscape update

(v) Spider is used for : (1)

(a) Crawling

(b) Indexing

(c) Retrieval

(d) Updating

(vi) A score developed by Moz that predicts how well a website will rank on SEO is : (1)

(a) Software Authority

(b) Domain Authority

(c) Web page Authority

(d) Hyper link Authority

(vii) What is BING? (1)

(a) Virus

(b) Website

(c) Search Engine

(d) Directory

(viii) _____ and _____ are two SEO practices? (1)

(a) White Hat and Black Hat

(b) On and Off

(c) Visible and Invisible

(d) Domain and Subdomain

(ix) URL stands for : (1)

(a) Unsolved Resource Locator

(b) Uniform Resource Locator

(c) United Resource Locator

(d) Unidentified Resource Locator

(x) Retrieval is used for :

(a) SEO

(b) Website Updating

(c) Clearing the History

(d) Indexing

SECTION B

2. What is the significance of SWOT analysis in SEO?

3. Discuss the importance of sitemap in SEO in detail.

4. What are the various Online Optimization Techniques Discuss in detail.

5. Explain any **two** of the following :

(a) Crawling

(b) Indexing

(c) Retrieval

6. Write the steps to submit a directory to Google Search Engine.

is question paper contains 7 printed pages]

Roll No. | | | | | | | | | | |

No. of Question Paper : 9545

que Paper Code : 62343603 HC

ıe of the Paper : **Web Designing using HTML**

ıe of the Course : **B.A. (Programme) Computer Application : SEC**

ester : **VI**

ıtion : **2 Hours** Maximum Marks : **25**

e your Roll No. on the top immediately on receipt of this question paper.)

Question No. **1** in Section A is compulsory.

Attempt any *three* questions from Section B

Parts of a question should be answered together.

Sections A

(*a*) Which is the correct CSS syntax ? 10×1=10

(*i*) {body {color: black}

(*ii*) {body;color:black}

(*iii*) {body:color=black(body}

(*iv*) body:color=black.

P.T.O.

example

(b) For selecting only one option from multiple options, what is the value of *type* attribute in *Input* ?

(i) radio

(ii) text

(iii) submit

(iv) checkbox.

(c) The *src* attribute of the *<IMG>* tag stands for :

(i) location of the image file

(ii) sequential arrangement of pages

(iii) creation of similar image

(iv) none of the above.

(d) Which HTML tag is used to define a local style sheet ?

(i) <style>

(ii) <css>

(iii) <script>

(iv) none of the above

(e) Which of the following is true about *audio* tag in HTML5?

(i) HTML5 supports <audio> tag which is used to embed sound content in an HTML or XHTML document.

(*ii*) The current HTML5 draft specification does not specify which audio formats browsers should support in the audio tag

(*iii*) Both of the above

(*iv*) None of the above.

(*f*) What is the HTML5 attribute used, to *left align* the content in CSS ?

(*i*) <td left>

(*ii*) <td="align left">

(*iii*) float: left

(*iv*) border: 2px black solid.

(*g*) Which among the following browsers support HTML5 ?

(*i*) Safari

(*ii*) Firefox

(*iii*) Internet Explorer

(*iv*) All of the above.

(*h*) Which of the following is an attribute of the *Form* tag ?

(*i*) meta charset

(*ii*) header

(*iii*) action

(*iv*) <p>.

P.T.O.

example.

(*i*) Which of the following is true about <!doctype> declaration in HTML5 ?

(*i*) <!doctype> declaration is optional

(*ii*) There must be only one <!doctype> declaration

(*iii*) There must be only two <!doctype>declaration

(*iv*) There can be any number of <!doctype> declaration.

(*j*) How to add alternate text for an image ?

(*i*)

(*ii*)

(*iii*)

(*iv*) .

Section-B

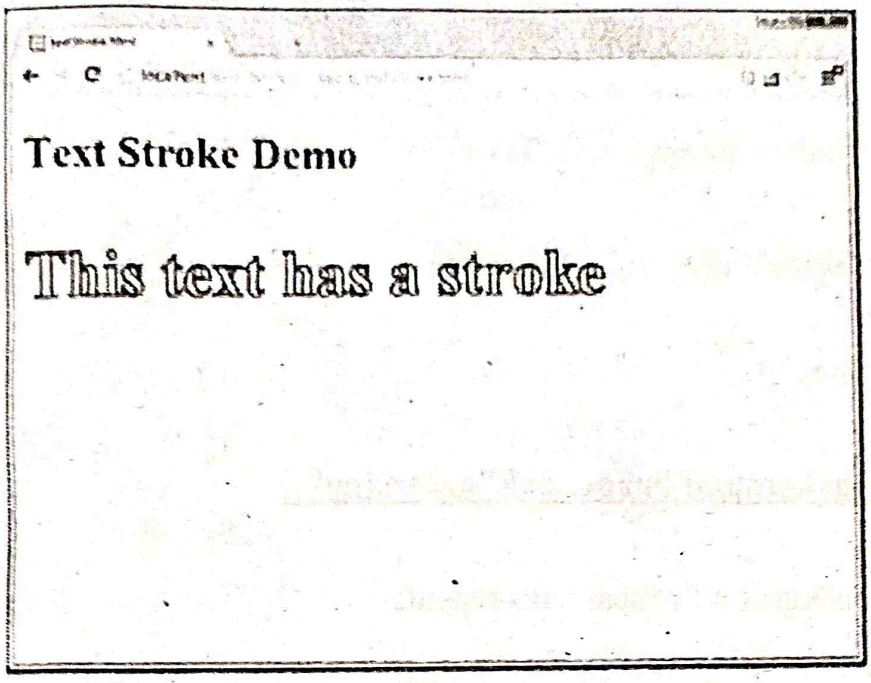
2. (*a*) Differentiate between RGB and HSL coloring schemes. 2

(*b*) Explain the meaning of each line of the following code segment : 3

```
@font-face {
font-family: "Miama";
src: url("Miama.otf");
}
```

3. (*a*) What is the use of charset attribute of meta tag ? 2

(*b*) Write a program in HTML5 to print the following : 3



4. Explain the three levels of CSS styles that can be applied on a web page. Also give their syntax. 5

5. (*a*) What are the limitations of using flash animation tool with HTML5 ? How can it be overcome in CSS ?3

(*b*) Give the syntax of reflection of an image in CSS. 2

6. Explain the working of underlined code in the following program : 5

```
<!DOCTYPE HTML>
```

P.T.O.

example. 2

```
<html lang = "en">
<head>
<title>opacity.html</title>
<meta charset = "UTF-8"/>
<style type = "text/css">
body {
background-image: url("apoyo.jpg");
background-repeat: no-repeat;
}
h1 {
color: rgba(0, 0, 0, .3);
}
#box {
position: absolute;
top: 350px;
left: 100px;
height: 100px;
```

```
<html lang = "en">
<head>
<title>opacity.html</title>
<meta charset = "UTF-8"/>
<style type = "text/css">
body {
background-image: url("apoyo.jpg");
background-repeat: no-repeat;
}
h1 {
color: rgba(0, 0, 0, .3);
}
#box {
position: absolute;
top: 350px;
left: 100px;
height: 100px;
```

```
width: 100px;

border: 1px solid red;

background-color: white;

opacity: .3;

}

</style>

</head>

<body>

<h1>Opacity Demo</h1>

<div id = "box"></div>

</body>

</html>
```


example.

9545

```
width: 100px;

border: 1px solid red;

background-color: white;

opacity: .3;

}

</style>

</head>

<body>

<h1>Opacity Demo</h1>

<div id = "box"></div>

</body>

</html>
```


example.

This question paper contains 4 printed pages.

Your Roll No. .....

Sl. No. of Ques. Paper : **9583** **HC**

Unique Paper Code : **62345625**

Name of Paper : **Multimedia and Web Designing**

Name of Course : **B.A. (Prog) : Computer Applications : GE**

Semester : **VI**

Duration : **3 hours**

Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Question No. 1 is compulsory. Attempt five questions from the Question Nos. 2 to 8.

(a) What do you understand by multimedia? 2

(b) What is the difference between
 and <P> in HTML? 2

(c) Why is CSS preferred over the deprecated HTML? 2

(d) Define the term dithering. 3

(e) Explain sampling rate with an example. 3

(f) What are kinematics and inverse kinematics? 3

(g) Differentiate between <Frame> and <Frameset> in HTML with an example. 3

(h) Explain Safe Title Area in terms of video with example. 2

P. T. O.

(i) Explain the structure of an HTML program. 3

(j) Write any two jobs of HTTP protocol. 2

2. (a) Differentiate between CELLPADDING and CELLSPACING with syntax in HTML. 4

(b) Create an HTML form for an employment agency using the following:

Text box, Radio buttons, Check boxes, Text area, Submit button and Reset button. 6

3. (a) Describe letter-spacing, line-height and text-align properties in terms of CSS. 6

(b) What are the circumstances in which digital audio is used? 4

4. (a) Briefly describe the Cel animation. 5

(b) Compare XML with HTML with an example. 5

5. (a) Write the HTML program to generate the following output:

Hardware devices:

- CD-ROM
- DVD drive
- Hard disk
- Modem

Web languages:

- HTML
- JavaScript
- PHP
- Java 6

(b) Briefly describe any three storage devices used in a multimedia project. 4

6. (a) What is style sheet? Explain its basic syntax with an example. 4

(b) Write the HTML code for the following:

FRAME1	
FRAME2	FRAME3
FRAME4	

7. (a) What are Time based authoring tools? Explain with an example. 5

(b) Define color palette. What are the uses of colour palettes in multimedia? 5

8. Write HTML code to create the following table: 4

STUDENT

Roll No.	Name	Marks
101	A	55
102	B	50
103	C	60
104	D	70

(a) What is Degaussing? 2

(b) Explain any two applications of Multimedia. 4

This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : 9609

Unique Paper Code : 62347626 HC

Name of the Paper : Software Engineering

Name of the Course : B.A. (Programme) Computer Application

DSE-3

Semester : VI

Duration : 3 Hours Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

The paper has two sections. Section A is compulsory.

Attempt any *five* questions from section B.

Parts of a question must be answered together.

Section A

1. (*i*) There are *two* types of metrics used for software development, give their names. Define each. 3

P.T.O.

This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : 9609

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Name of the Paper : Software Engineering

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DSE-3

Semester : VI

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The paper has two sections. Section A is compulsory.

Attempt any *five* questions from section B.

Parts of a question must be answered together.

Section A

1. (*i*) There are *two* types of metrics used for software development, give their names. Define each. 3

P.T.O.

(*ii*) How does a phased process help in achieving high Quality and Productivty, when it seems that we are doing more tasks in a phased process as compared to an ad-hoc approach ? 3

(*iii*) What are functional and non functional requirements in context of software requirement analysis ? 3

(*iv*) List any *four* essential attributes of a good software product. 4

(*v*) What are the drawbacks of Waterfall model ? 3

(*vi*) Briefly describe the block box testing. 3

(*vii*) What do you mean by psychology of testing ? 3

(*viii*) "Problem analysis should be the integral part of software engineering process". Justify this statement. 3

Section B

2. (*a*) What are major software engineering challenges, explain any two in detail. 5

(*b*) Briefly describe the software management process. 5

3 (*a*) What is time-boxing process model ? Under what circumstances, it is recommended ? 5

(*b*) What is an iterative model in software development process ? Explain its advantages. 5

4 (*a*) Explain software configuration management process in detail. 5

(*b*) Describe any *two* characteristics of Software Requirement Specification document. 5

5 (*a*) What is the use of Data Flow Diagram (DFD) in problem analysis ? Explain DFD with a suitable example. 5

(*b*) What are various phases of software development process ? Explain any *two* in detail. 5

6 (*a*) Describe any two components of Software Requirement Specification document. 5

(*b*) What does the capability Maturity Model (CMM) determine ? Explain. 5

7 (*a*) What is the significance of boundary analysis testing ? 5

(*b*) Show and briefly describe the levels of software testing with the help of a diagram. 5

8 (*a*) Write the general structure of a requirement document. 5

(*b*) How prototyping is used in requirement analysis ? 5

This question paper contains 3 printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : **9636**

Unique Paper Code : **62347626** **HC**

Name of the Paper : **Software Engineering**

Name of the Course : **B.A. (Programme) : Computer Application-DSE-4**

Semester : **VI**

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

The paper has *two* sections. Section A is compulsory.

Attempt any *five* questions from section B.

Parts of a question must be answered together.

Section A

1. (*i*) What are the differences between the student software and the industrial strength software ? 3

(*ii*) "An SRS provides a reference for validation of the final product". Justify the statement. 3

P.T.O.

(*iii*) List any *three* essential attributes of a good software product. 3

(*iv*) What does ETVX stand for ? 2

(*v*) Define the terms: Reliability and Maintainability. 2

(*vi*) What is the purpose of a data flow diagram ? Explain with a suitable example. 4

(*vii*) What is a prototyping Process Model ? Under what circumstances, it is recommended ? 4

(*viii*) Explain black box testing method. 4

Section B

2 (*a*) Describe an early defect removal in the context of the software process. 5

(*b*) Discuss the components Software Processes. 5

3 (*a*) Describe predictability in the context of the software process. 5

(*b*) What is Software Requirement Specification document (SRS) ? List and describe any *two* characteristics of SRS. 5

4 (*a*) Explain phases of Software development process. 5

(*b*) What is the main goal of the inspection process ? Explain. 5

5 (*a*) What is an Iterative process model ? Under what circumstances, it is recommended. 5

(*b*) List advantages, disadvantages of Waterfall model and when to use it ? 5

6 What does the capability maturity model (CMM) determine ? Explain its *five* capability Levels. 10

7 (*a*) What are different levels of testing and their goals. 5

(*b*) Why is the configuration management process needed in addition to the development process ? 5

8 Differentiate between the following :

(*a*) Error, fault and failure 6

(*b*) Quality and Productivity 4

[This question paper contains 8 printed pages]

Your Roll No. : .....

Sl. No. of Q. Paper : **7543** **HC**

Unique Paper Code : 32345201

Name of the Course : **Generic Elective: Computer Science**

Name of the Paper : Introduction to Database Systems

Semester : II

Time : 3 Hours ***Maximum Marks : 75***

Instructions for Candidates :

(a) Write your Roll No. on the top immediately on receipt of this question paper.

(b) Question NO.**1** is compulsory in **Section- A.**

(c) Attempt any **five** questions from **Section-B.**

(d) Parts of question should be attempted together.

P.T.O.

Section- A

1. (a) What are the functions of a DBA ? 2

(b) Identify the primary and foreign keys in the following relations : 5

Part (Part_no, Part_name, color)

Supplier (Supplier_no,Supplier_name,City)

Shipment (Part_no,Supplier_no, Quantity)

(c) Define the following terms : 4

(i) Attribute

(ii) Degree of a relation

(d) Give short answer for the following : 3

(i) What is the SQL clause for displaying the output of the query in ascending order ?

(ii) What is the column or group of columns that uniquely identify a tuple called ?

(iii) What is the diagrammatic representation of the entities and the relationships amongst them called ?

(e) Consider the following table EMP_DETAIL :

ID	Name	Age	Address	Salary(₹)
1	Ram	32	Mumbai	5000.00
2	Mohan	25	Delhi	3500.00
3	Roy	23	Agra	4000.00

Formulate the SQL queries for the following :

(i) Insert a tuple <4,Sita, 28, Shimla, 7000>. 2

(ii) Delete the tuple where the address is 'Delhi'. 2

(iii) Modify the salary of an employee having ID = 1, to 6000. 2

(iv) Display the names and address of employees having salary greater than 4000. 2

(f) Suggest appropriate data types for the following attributes : 3

(i) Commission of a salesperson

(ii) The date of joining of an employee

(iii) Name of the author of a book

Section-B

2. (a) Can a binary relation have both the attributes defined over the same entity set ? Illustrate using an example. 4

(b) Draw the ER diagrams for the following entities and relationships, depicting the cardinality ratios : 6

Entity 1	Relationship	Entity 2
(i) Employee	HAS	Dependent
(ii) Supplier	SUPPLIES	Part
(iii) Waiter	SERVES	table

3. (a) Consider the following relational database schema that keeps track of auto sales in a car dealership.

CAR (Serial_no, Model, Manufacturer, Price)

Sales (Salesperson _id, Serial _no, Date, Sale_price)

SALESPERSON (Salesperson _id, Name, phone)

Write the SQL queries for the following :

(i) For the salesperson named 'Raman Lamba', list the Serial _no, Manufacturer, Sale_price for the cars she sold. 3

(ii) List the serial_no and model of cars sold in between the months of March 2016 and Dec 2016. 2

(iii) Display all car models and their manufacturers in the decreasing order of their price. 2

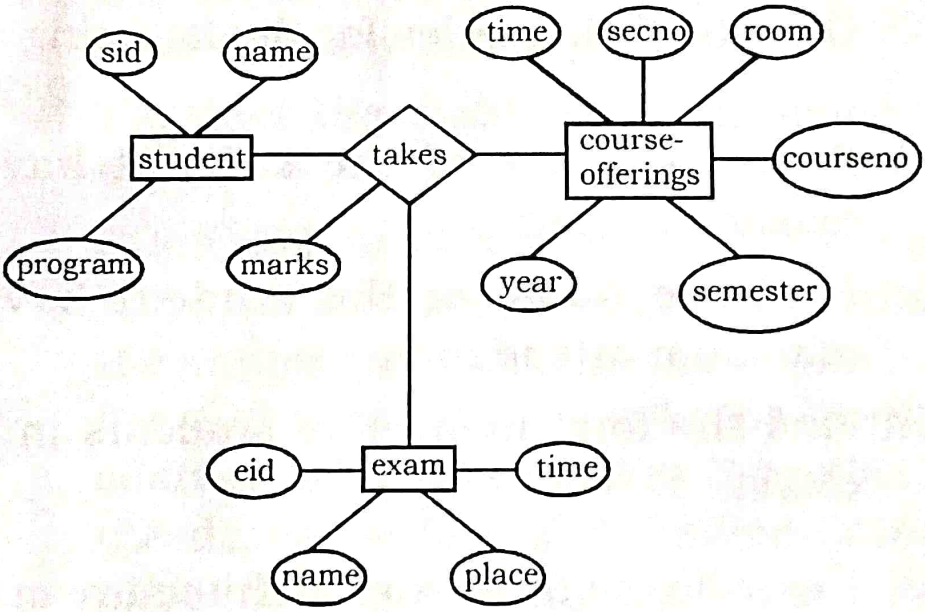
(b) Give one word answer for the following : 3

(i) An entity which has primary key of its own

(ii) Attributes that combine to form primary key

(iii) Data about data

4. Consider the following ER diagram :



(i) Identify the relations and relationship from the diagram. 2

(ii) Give the schema for each of them. 4

(iii) Give the primary and foreign keys of each relation. 4

5. (a) What is normalization ? Why do we need it ? 2+2=4

(b) Consider the following relation STUDENT :

Roll No	Name	Marks	Attendance
1	Smith	44	78
2	Paul	52	68
3	James	69	87
4	John	54	74

Give the SQL queries for the following : 2×3=6

(i) Find the Name of the student having maximum marks.

(ii) Find the Name of the student having minimum attendance.

(iii) Find the total number of students in the class.

6. (a) Describe the three -tier architecture of the DBMS with the help of a diagram. 4

(b) Consider the following table PLAYER_INFO :

Player ID	Name	Sport Played
1	Joey	44
2	Virat	52
3	Manoj	69
4	Xavier	54

(i) Write SQL command to create the table. 2

(ii) Write SQL command to add one more column AGE to above table. 2

(iii) Write SQL command to remove the above table from the database. 2

7. (a) Differentiate between primary key, candidate key and super key. 3

(b) Consider the database of an online book store.

Every book has a title, ISBN, Year and price. The store also keeps the information about the author and publisher for all the books. For author the database keeps the name, address, and phone number. For publishers, the database keeps the name, address, phone number. Many author may write many book and a book is published by one publisher only.

(a) Identify the entities of interest and their attributes. 2

(b) Identify the relationships among these entities. 2

(c) Design an E-R diagram for such a bookstore and state necessary assumptions. 3

8. (a) What are referential integrity constraints ? Give one example. 4

(b) Differentiate between : 2×3=6

(i) Logical and physical data independence

(ii) DDL and DML

(iii) Strong and weak entity

This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | |

S. No. of Question Paper : 7673

Unique Paper Code : 32345401 HC

Name of the Paper : Information Security and Cyber Laws

Name of the Course : Generic Elective : Computer Science

Semester : IV

Duration : 3 Hours Maximum Marks : 75

Write your Roll No. on the top immediately on receipt of this question paper.)

Question number 1 is compulsory from Section A.

Attempt any *four* questions from Section B.

Section A

(*a*) What is Spoofing ? 2

(*b*) What is TCP Session Hijacking ? 3

(*c*) What are the *three* goals of data security ? 3

(*d*) Give any *four* malicious codes and explain each briefly. 4

P.T.O.

(*e*) List any *three* password cracker tools. 3

(*f*) Explain briefly cyber forensic. 2

(*g*) What is the punishment for dishonestly receiving stolen computer resource or communication device under ITAA 2008 ? 3

(*h*) What is Identity Theft ? What is the punishment for same under the ITAA 2008 ? 3

(*i*) Explain briefly Caesar Cipher with a suitable example using key = 3. 3

(*j*) Differentiate between the following (any *three*) : 3×3

(*i*) Active and Passive Attack

(*ii*) Secret Key and Public Key

(*iii*) Fault and Failure

(*iv*) Law and Ethics

(*v*) Virus and Trojan Horse.

Section B

2. (*a*) Define threat with respect to computing system. Explain different kinds of threats. 5

(*b*) Explain CIA triad and its relevance to computer security. 5

3. (*a*) What is cryptanalysis ? Explain any *three* different things that a cryptanalyst can attempt to attack the system. 4

(*b*) Explain transposition cipher with suitable example. 3

(*c*) What is Hacking ? What is the punishment for same under the ITAA 2008 ? 3

4. (*a*) What is risk analysis ? List the basic steps of risk analysis. 5

(*b*) What is a security policy ? Explain any *three* characteristics of a good security policy. 5

5. (*a*) What are firewalls ? Explain any *four* features of a firewall. 5

(*b*) What do you understand by authentication ? Mention any *two* ways in by which human user can be identified and computer can be authenticated. 3

P.T.O.

(c) Write a short note on password security in Windows 2000. 2

6. (a) What is Cyber Crime ? Explain any *four* techniques to commit cyber crimes. 5

(b) Explain the punishment for Cyber Terrorism under the ITAA 2008. 3

(c) Write a short note on Digital Signature. 2

7. (a) What do you understand by the term malicious hackers ? Explain any *three* broadly classified Hackers. 5

(b) List any *five* guidelines of password selection. 5