

C-3625

Sub. Code

80513

B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

&

APRIL 2020 ARREAR EXAMINATION

First Semester

PROGRAMMING IN C

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is a variable?
2. Write a note on : Assignment statement.
3. Write down the syntax of if-else statement.
4. What is the purpose of comma operator?
5. State any two advantages of using functions.
6. Name the four storage classes in C.
7. Define arrays.
8. How are individual array elements identified?
9. How to access the elements of a structure?
10. What is a file?

Part B

(5 × 5 = 25)

Answer **all** questions, by choosing either (a) or (b).

11. (a) What is a statement? Explain the three classes of statements in C.

Or

- (b) Describe the various data types in C.

12. (a) Discuss the nested control structures with an example.

Or

- (b) Explain the working principle of switch statement with an example.

13. (a) Give a brief account on function prototype.

Or

- (b) Explain recursion with an example.

14. (a) How multidimensional arrays are declared? Explain with an example.

Or

- (b) Write a C program to display array elements and their correspondence array addresses.

15. (a) List the various rules of pointer operation.

Or

- (b) Describe the various modes of opening a data file.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) List and explain the different categories of operators in C with suitable examples.

Or

- (b) Describe the looping statements in C with example.

17. (a) How will you declare an array? Explain it with an example.

Or

- (b) Write a C program to sort an array of n numbers.

18. (a) Explain the various operations on pointers.

Or

- (b) Explain structures using a sample code.

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B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

&

APRIL 2020 ARREAR EXAMINATION

First Semester

MATHEMATICS – I

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Expand $\tan n\theta$.
2. Expand $\cos\theta$ in ascending powers of θ .
3. Define an equivalence relation.
4. Define one-one and onto functions.
5. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 5 \\ 2 & 3 \\ 1 & 2 \end{bmatrix}$ then find AB .
6. Define eigen values of a matrix.
7. Solve : $x^3 - 12x^2 + 39x - 28 = 0$ whose roots are in A.P.

8. Form the equation, one of whose roots is $\sqrt{5} + \sqrt{3}$.
9. Find the n^{th} derivative of $e^{ax} \cos(bx + c)$.
10. State Euler's theorem on homogeneous functions.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Expand $\cos 6\theta$ in terms of $\sin \theta$.

Or

- (b) If $\frac{\sin x}{x} = \frac{863}{864}$ find an approximate value of x .

12. (a) Let $U = \{x/x \in \mathbb{Z} \text{ and } 1 \leq x \leq 10\}$. $A = \{x/x \in U \text{ and } x \text{ is a prime number}\}$ $B = \{x/x \in U \text{ and } x \text{ is even}\}$ then find (i) $A \Delta B$ and (ii) $A \Delta B^C$.

Or

- (b) If $f: R \rightarrow R$ is given by $f(x) = x^2$ and $g: R \rightarrow R$ is given by $g(x) = x^3$, find
- (i) $f \circ g$ and
- (ii) $g \circ f$.

13. (a) Express $\begin{bmatrix} 6 & 8 & 5 \\ 4 & 2 & 3 \\ 9 & 7 & 1 \end{bmatrix}$ as the sum of a symmetric and a skew symmetric matrices.

Or

(b) Determine the characteristic roots of the matrix

$$\begin{bmatrix} 0 & 1 & 2 \\ 1 & 0 & -1 \\ 2 & -1 & 0 \end{bmatrix}.$$

14. (a) If α, β, γ are the roots of the equation $x^3 + px^2 + qx + r = 0$, then find the value of

(i) Σd^2 (ii) $\Sigma d^2 \beta$.

Or

(b) If α, β, γ are the roots of the equation $x^3 + qx + r = 0$, form the equation whose roots are the squares of the difference of the roots.

15. (a) Find the n^{th} derivative of $e^{ax} \cos^2 x \sin x$.

Or

(b) If $z = e^x(x \cos y - y \sin y)$, then show

that $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial y^2} = 0$.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Expand $\sin^3 \theta \cos^4 \theta$ in terms of sines of multiples of θ .

Or

- (b) Prove that the intersection of two equivalence relation is an equivalence relation. What about their union – Justify.

17. (a) Show that the matrix $A = \begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$ satisfies

Cayley-Hamilton theorem.

Or

- (b) Find the eigen values and eigen vectors of the

matrix $A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$

18. (a) Find by Newton's method an approximate value of the positive root of the equation $x^3 - 2x - 5 = 0$.

Or

- (b) Investigate the maximum and minimum value of $f(x, y) = 4x^2 + 6xy + 9y^2 - 8x - 24y + 4$.

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B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

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APRIL 2020 ARREAR EXAMINATION

Second Semester

OBJECT ORIENTED PROGRAMMING IN C++

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. List the features of OOP.
2. What are tokens?
3. What is a class?
4. State the need for Storage classes?
5. What are copy constructors?
6. Define an array.
7. What is a super class?
8. What are virtual functions?
9. State the use of manipulators.
10. Differentiate Unformatted I/O from Formatted I/O.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Discuss about the applications of OOP.
Or
(b) Write a note on C++ data types.
12. (a) How to define data members and member functions? Discuss.
Or
(b) Write a note on Inline functions.
13. (a) Discuss about overloading operators.
Or
(b) Write a note on pointers.
14. (a) Explain the need for access specifiers during inheritance.
Or
(b) Write a note on virtual base classes.
15. (a) Discuss about C++ streams.
Or
(b) Explain about any two exceptions.

Part C

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain in detail about the features of OOP.
Or
(b) Discuss in detail about the control structures in C++.

17. (a) Discuss about function overloading.

Or

(b) With an example explain binary operator overloading.

18. (a) Discuss about the types of inheritance.

Or

(b) Explain exception handling with examples.

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B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

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APRIL 2020 ARREAR EXAMINATION

Second Semester

MATHEMATICS — II

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. If $u = \frac{xy}{x+y}$ show that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = u$.
2. Define maximum value of a function.
3. Prove that $\int_a^b f(x) dx = -\int_b^a f(x) dx$.
4. State the reduction formula for $\int \sin^n x dx$.
5. Solve $(D^2 - 36)y = 0$.
6. Solve $(D^3 - 3D^2 + 3D - 1)y = 0$.
7. Solve $pq = k$.

8. Solve $px + qy + pq = 0$.
9. Define half range Fourier series.
10. Expand $f(x) = e^x$ in a series of sine.

Part B (5 × 5 = 25)

Answer **all** questions, by choosing either (a) or (b).

11. (a) If $u = \frac{xy^2}{x+y}$, find the value of $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y}$.

Or

(b) Find n^{th} differential coefficient of $x^2 \log x$.

12. (a) Find $\int_0^{\pi/2} \frac{\sin^4 x}{\sin^4 x + \cos^4 x} dx$.

Or

(b) Obtain reduction formula for $\int_0^{\pi/2} \sin^n x dx$.

13. (a) Solve : $(D^2 + 5D + 6)y = e^x$.

Or

(b) Solve : $(D^2 + D + 1)y = \sin 2x$.

14. (a) Solve : $z = pq$.

Or

(b) Solve : $p^2 - q^2 = 4$.

15. (a) Expand $f(x) = x$ ($-\pi < x < \pi$) as a Fourier series with period 2π .

Or

(b) Show that in the range $(0, \pi)$ the sine series for $\pi x - x^2$ is $\frac{8}{\pi} [\sin x + \frac{1}{3^2} \sin 3x + \dots]$

Part C

(3 × 10 = 30)

Answer **all** questions, by choosing either (a) or (b).

16. (a) Find minimum value of $x^2 + y^2 + \frac{2}{x} + \frac{2}{y}$.

Or

(b) Evaluate $\int x^4 e^x dx$.

17. (a) Prove that $\int_0^{\pi/4} \log(1 + \tan \theta) d\theta = \frac{\pi}{8} \log 2$.

Or

(b) Obtain reduction formula for $\int \tan^4 x dx$.

18. (a) Solve $x^2 \frac{d^2 y}{dx^2} + x \frac{dy}{dx} + y = \log x$.

Or

(b) Expand $x \cos x$ as a Fourier series in $(-\pi, \pi)$.

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B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

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APRIL 2020 ARREAR EXAMINATION

Third Semester

PRINCIPLES OF INFORMATION TECHNOLOGY

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What do you mean by digital age?
2. List the elements of computer and communications system.
3. What is an application software?
4. What are browsers?
5. What is virtual offices?
6. What is a modem?
7. What is an optical disk?
8. Define DBMS.
9. What are information systems?
10. What do mean by system analysis?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss about the transition from analog to digital age.

Or

- (b) Write note on developments in communications technology.

12. (a) Explain about personal information managers.

Or

- (b) What are groupware? Discuss in detail.

13. (a) Discuss about telephone related communication services.

Or

- (b) Write a note on local networks.

14. (a) Briefly describe the criteria for rating secondary storage devices.

Or

- (b) What is primary key? Describe.

15. (a) Discuss on the software development process.

Or

- (b) Discuss about the generations of programming languages.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail about the revolution in computers and communications.

Or

- (b) Describe the elements of computer and communications systems.

17. (a) Discuss about any two applications software.

Or

- (b) Discuss in detail about the factors affecting data transmission.

18. (a) Explain the features of compression and decompression.

Or

- (b) What is MIS? Explain in detail.
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B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

&

APRIL 2020 ARREAR EXAMINATION

Third Semester

PROGRAMMING IN JAVA

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What do you mean by OOP?
2. What is a variable?
3. Define class.
4. What is a super class?
5. What is a package?
6. What is an uncaught exception?
7. Define the term applet.
8. State the need for vector.
9. List some AWT controls.
10. What is the purpose of layout managers?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the features of Java.

Or

- (b) Explain the concept of polymorphism.

12. (a) How to create an object? Explain.

Or

- (b) What is the difference between a class and abstract class? Discuss.

13. (a) Discuss the need for access protection.

Or

- (b) What is multi threading? Explain.

14. (a) Write a note on file streams.

Or

- (b) With suitable example explain about calendar utility.

15. (a) What is an event? Discuss about event handling.

Or

- (b) Describe the need for menus.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail about arrays.

Or

- (b) Discuss about the control statements in Java.

17. (a) Discuss in detail about inheritance.

Or

(b) Explain in detail about packages.

18. (a) Describe the life cycle of an applet.

Or

(b) Discuss about AWT controls.

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B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

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APRIL 2020 ARREAR EXAMINATION

Third Semester

STATISTICAL AND NUMERICAL METHODS

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Calculate the arithmetic mean for the following data :
Weight 50 48 46 44 42 40
Persons 12 14 16 13 11 09
2. Define Geometric mean of set of n observations.
3. What do you mean by positive correlation?
4. Write the regression line of X on Y.
5. What is mean by alternative hypothesis?
6. Define critical region.
7. If α, β, γ are the roots of the equation $x^3 + px^2 + qx + r = 0$.
8. Write a note on bisection method.

9. Calculate $\int_0^1 \frac{dx}{1+x}$ by trapezoidal rule.

10. Find $\int_0^1 e^x dx$ by Simpson's $\frac{3}{8}$ rule.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Find Median for 40, 90, 61, 68, 72, 43, 50, 84, 75, 33

Or

- (b) Calculate A.M for the following :

Value	1	2	3	4	5	6	7	8	9
Frequency	7	11	16	17	26	31	11	1	1

12. (a) Prove that the correlation coefficient is independent of change of origin and scale.

Or

- (b) Find rank correlation coefficient for the following :

x	10	12	13	18	15	40
y	12	18	25	25	50	25

13. (a) Write the procedure for testing of a statistical hypothesis.

Or

- (b) A random sample of 10 boys has following I.Q. 70, 120, 110, 101, 88, 83, 95, 98, 107, 100. Do these data support the assumption of a population mean I.Q of 100.

14. (a) Solve :
 $4x - 3y = 11$
 $3x + 2y = 4$

By Gauss Jordan method.

Or

- (b) Solve by Jacobi method
 $14x - 5y = 5.5$
 $2x + 7y = 19.3$

15. (a) Solve by trapezoidal rule $\int_0^1 e^x dx$ with $h = 0.5$.

Or

- (b) Find $\int_0^1 \frac{dx}{1+x}$ by Simpson's $\frac{1}{3}$ rule.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Given $\sum x_i = 99$, $n = 9$, $\sum (x_i - 10)^2 = 79$ Find $\sum x_i^2$ and σ^2 .

Or

- (b) Find correlation coefficient for the following :

x	3	4	6	7	10
y	9	11	14	15	16

17. (a) Obtain two regression equations.

X	25	28	30	32	35	36	38	39	42	45
Y	20	26	29	30	25	18	26	35	35	46

Or

- (b) Five coins are tossed 320 times. Number of heads observed is given below. Examine whether the coin is unbiased.

No. of heads	0	1	2	3	4	5	Total
Frequency	15	45	85	95	60	20	320

18. (a) Solve by Gauss method :

$$3x + 4y + 5z = 18$$

$$2x - y + 8z = 13 \quad .$$

$$5x - 2y + 7z = 20$$

Or

- (b) Evaluate $\int_0^1 \frac{dx}{1+x^2}$ with $h = \frac{1}{6}$ by Simpson's 1/3 rule and 3/8 rule.
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B.Sc. DEGREE EXAMINATION

IT AND LOGISTICS

APRIL 2021 EXAMINATION

&

APRIL 2020 ARREAR EXAMINATION

Third Semester

CONSTITUTION OF INDIA

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Dr. Sachidananda Sinha.
2. Drafting committee.
3. First citizen of India.
4. Rajya Sabha Chairman.
5. Legislative Assembly.
6. Bill.
7. The first judge of supreme court.
8. Bench of supreme court.
9. The president.
10. Indian parliament.

Part B

(5 × 5 = 25)

Answer **all** questions by choosing either (a) or (b).

11. (a) Write a note on preamble of Indian constitution.

Or

- (b) What is role of Dr. Rajendra Prasad in India Constitution?

12. (a) How do select the Indian president?

Or

- (b) Explain the functions of vice president of India.

13. (a) Examine the duties of speaker in Rajya Sabha.

Or

- (b) Write a note on Lok Sabha.

14. (a) List out the qualification of supreme court judge.

Or

- (b) How do implement of rule of law?

15. (a) How do create the new legislature?

Or

- (b) Good justice is need to Human – discuss.

Part C

(3 × 10 = 30)

Answer **all** questions by choosing either (a) or (b).

16. (a) Write an essay on salient features of Indian constitution.

Or

- (b) List out the powers of prime minister of India.

17. (a) Write an essay on functions of cabinet ministers.

Or

(b) Describe the functions of Rajya Sabha.

18. (a) Explain the judicial review powers of supreme court chief justices.

Or

(b) Write an essay on presidential executive in India.

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B.Sc. DEGREE EXAMINATION
INFORMATION TECHNOLOGY AND LOGISTICS
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION

Fourth Semester

COMPUTER NETWORKS

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Mention any four network topologies.
2. What is the basic function of the transport layer?
3. What is FDDI?
4. Mention the use of slotted Aloha.
5. What do you mean by congestion?
6. What is character stuffing?
7. List out the primitives of a transport service.

8. Differentiate between TCP and UDP.
9. What is DNS?
10. Define the term cryptanalysis.

Part B

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Draw the topologies for point-to-point channels and broadcast channels.

Or

- (b) Explain the ISDN services.

12. (a) Explain the simplex stop-and-wait protocol.

Or

- (b) Describe CSMA and CSMA/CD protocols.

13. (a) Write an overview about congestion control algorithms.

Or

- (b) Describe the format of ATM.

14. (a) Briefly explain connection establishment and connection termination in transport layer.

Or

- (b) How will you measure network performance? Explain.

15. (a) Discuss the privacy issues of electronic mail.

Or

(b) Discuss on JPEG and MPEG standards.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) What are the different layers of ISO-OSI network model? Explain briefly the functions of each.

Or

(b) Discuss on Satellite communication.

17. (a) Describe the petri net models.

Or

(b) Discuss about any two routing algorithms.

18. (a) Explain Flow control and buffering technique.

Or

(b) Discuss on Network security.

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B.Sc. DEGREE EXAMINATION
INFORMATION TECHNOLOGY AND LOGISTICS
APRIL 2021 EXAMINATION
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APRIL 2020 ARREAR EXAMINATION

Fourth Semester

WEB TECHNOLOGIES

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Expand the term HTML.
2. What is hyperlink in HTML?
3. How to integrate CSS on a webpage?
4. What is the purpose of external stylesheet?
5. List down the margin properties in CSS.
6. What is CSS Box Model?
7. Write the basic syntax of invoking a Javascript.

8. What is Boolean datatype?
9. When is onBlur event fires?
10. How does get method sends data to server?

Part B

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) How to link an image to another page in HTML?
Explain.

Or

- (b) Create a webpage that displays three images with left, right and center alignment.

12. (a) Differentiate between div and span in CSS.

Or

- (b) How to create inline stylesheet for an HTML page?
Explain.

13. (a) Write a note on CSS Color values.

Or

- (b) Define the following properties :

- (i) letter-spacing
- (ii) text-indent
- (iii) text-transform.

14. (a) Differentiate between while and for loop in Javascript with suitable examples.

Or

(b) Write a note on :

- (i) eval()
- (ii) parseInt()
- (iii) parseFloat() functions.

15. (a) How a Javascript enabled browser handles the document object? Discuss.

Or

(b) Discuss about objects within objects through examples.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain Frames in HTML with an example program.

Or

(b) Explain how to set font properties for contents in an HTML element.

17. (a) Explain operators in Javascript with suitable examples.

Or

(b) (i) Write a Javascript program using document.write() method.

(ii) Write a Javascript program using recursive function.

18. (a) Illustrate the use of Select and Option elements of HTML form.

Or

(b) Write in detail about :

(i) Math object

(ii) Date object.

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**B.Sc. DEGREE EXAMINATION
INFORMATION TECHNOLOGY AND LOGISTICS
APRIL 2021 EXAMINATION**

&

APRIL 2020 ARREAR EXAMINATION

Fourth Semester

DATABASE MANAGEMENT SYSTEM

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What are attributes? Give examples
2. Define : Weak and strong entity sets.
3. What is foreign key?
4. Give the general format of SQL query.
5. List the types of storage devices.
6. Define the term access time.
7. What is meant by index?

8. When is transaction roll back?
9. Define the term distributed database.
10. Differentiate between homogeneous and heterogeneous database.

Part B

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Compare fire processing system with database system.

Or

- (b) Write short notes on views.

12. (a) Briefly explain about embedded sql.

Or

- (b) What is meant by integrity and security? Explain.

13. (a) Discuss on nested relation.

Or

- (b) Write about functions and procedures.

14. (a) Describe the properties of transaction.

Or

- (b) Give a brief account on deadlock recovery technique.

15. (a) Sketch the Database system architecture and write a note on the components.

Or

- (b) Write short notes on centralized and client server architecture.

Part C (3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Explain ER model with an example.

Or

- (b) What is meant by relational calculus? Explain.

17. (a) With relevant examples, explain DDL and DML commands.

Or

- (b) Explain 1NF, 2NF and BCNK in detail.

18. (a) Discuss on object relational data model.

Or

- (b) Describe the Lock based protocols.