



RAN - 2511001104011001

RAN-2511001104011001

B.Sc. (IT) (Sem- IV) Examination April - 2025

C #. NET

Time: 3 Hours]

[Total Marks: 70

સૂચના : / Instructions

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નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

B.Sc. (IT) (Sem- IV)

Name of the Subject :

C #. NET

Subject Code No.: **2511001104011001**

Seat No.:

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Student's Signature

- (2) All questions are compulsory.
(3) Give examples wherever applicable.

- Q.1 Do as directed. 14**
- a) What is CLS in .NET Framework? Explain its role in detail. 05
b) List out any five Win Form controls common properties with example. 05
c) What is message box? How and why is it useful? 04
- Q.2 Answer any TWO from the following. 14**
- a) What is control array? How to use it? Explain its advantages with example.
b) Explain MenuStrip, StatusStrip and ToolStrip in detail with example.
c) What is DataReeder? How does it work? Explain with example.
- Q.3 Write a note on any TWO from the following. 14**
- a) .NET Framework Architecture
b) Difference between FlowLayoutPanel control and Panel control
c) Control Flow Statements in C#

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Q.4 Answer any TWO from the following. 14

- a) How C#ArrayList type is different from array type? Explain with example.
- b) How WinForm controls are managed after drag and drop on the form control? Also explain where its property settings changes are recorded?
- c) What is MDI Form? How to configure it? Explain in detail.

Q.5 Answer any TWO from the following. 14

- a) Design a sample code for a windows form to fetch and show student data in a DataGridView.
 - b) Draw and explain ADO.NET architecture in detail.
 - c) Differentiate ListBox control with ListView control in detail.
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RAN - 2511001104022001

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B. Sc. IT (Sem. - IV) (NEP) Examination April - 2025

Major RDBMS and NoSQL Database (Paper : 404)

[Total Marks: 50

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Name of the Examination:

B. Sc. IT (Sem. - IV) (NEP)

Name of the Subject :

Major RDBMS and NoSQL Database (Paper : 404)

Subject Code No.: 2511001104022001

Seat No.:

Student's Signature

Q. 1. A. Define the following terms [Any Five]

05

1. Non-Trivial FD
2. On delete cascade
3. Self Join
4. NULL value
5. Correlated Sub query
6. MVD

Q. 1. B. Answer following questions in short [Any Five]

05

1. What is a sharding?
2. View can not be updated if it contain join queries. Justify this statement.
3. How to give table level primary key?
4. What is the condition for 1st normal form?
5. What is semantic checking for query?
6. Differentiate intersect and inner join.

Q. 2. A. Answer the following questions in detail [Any Two]

10

1. Explain multiple row sub query with examples. Can we modify single row operator to accept multiple values?
2. Explain basic steps of query processing? What are the different algorithms for query optimizations?
3. How to convert a table from 2NF to 3NF? What are the conditions for a table to be in 3NF?

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Q. 2. B. Answer the following questions in brief [Any Two] 06
1. What is the CAP theorem?
2. How to measure the query cost? Explain with an example.
3. Write relational algebra query for selecting female students with more than 90 marks in physics subject from student and marks table.

Q. 3. A. Answer the following questions in detail [Any Two] 10
1. Explain alter table command with all options.
2. What is MongoDB? How to create database and collections? Explain method to insert with an example.
3. Analyse following existing FD F:
{K --> J, Y --> J, C --> B, J --> L, B --> Z}
What is the closure set? Find the closure set F^+ and explain the rules for finding it.

Q. 3. B Answer the following questions in brief [Any Two] 06
1. Differentiate RDBMS and NoSQL.
2. Explain explicit inner join with an example.
3. Explain any three codd's rules for RDBMS.

Q. 4. A. Analyse university admission system and design an EER for the same system. 05

OR

Q. 4. A. Analyse cricket schedule system and design an EER for the same system.

Q. 4. B. Analyse the following tables and solve queries: 03
Emp (empid, name, salary, deptid), Dept (deptid, deptname)
1. Count total number of employees working in finance department
2. Find the department where employee salary is highest.



RAN - 2511001104044001

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B.Sc. IT (Sem. 4) (NEP) Examination April - 2025

Fundamental of Embedded System and IoT (Minor) - Paper : 402

Time: 2 Hours]

[Total Marks: 50

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Name of the Examination:

B.Sc. IT (Sem. 4) (NEP)

Name of the Subject :

Fundamental of Embedded System and IoT (Minor) - Paper : 402

Subject Code No.: **2511001104044001**

Seat No.:

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Student's Signature

Q.1. Answer the following questions. [10]

Q.1 [A] Define the following terms [Any Five] [05]

- 1) "soft real time system"
- 2) "stack pointer"
- 3) "scatnet of Bluetooth"
- 4) "RFID"
- 5) "Special Function Registers (SFR)"
- 6) "Debugger"

Q.1 [B] Answer following questions in short [Any Five] [05]

- 1) How UART communication is different than SPI communication?
- 2) What is the usage of oscillator in 8051 microcontroller based embedded system?
- 3) What is the usage of SBUF register of 8051 microcontroller?
- 4) Why ARM-7 is called 32-bit microcontroller?
- 5) How much on chip RAM is available in 8051 microcontroller?
- 6) List out at least four real world applications of Bluetooth.

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[1]

[P.T.O.]

P0453

Q.2 Answer the following questions in detail (16)

Q.2 [A] Answer the following questions in detail [Any Two] [10]

- 1) Explain “Integrated Development Environment (IDE)” tool for embedded system in detail
- 2) What is the usage of storage class in c- language? Explain register storage class, external storage class and auto storage class in detail.
- 3) Develop program to configure timer-0 in mode-2 as a 8-bit reload timer by considering TH0 = 0 × 45 and TL0= 0 × 75 value. Configure Interrupt-1 and timer-1 priority as a highest priority and make PORT-0 high when timer-0 interrupt service routine is executed. Write comments after each and every instruction to explain program logic

Q.2. [B] Answer the following questions in brief [Any Two] [06]

- 1) Compare static storage class with auto storage class and explain how static storage class is different than auto storage class?
- 2) What should be the Design stage objectives of water fall development model? How these objectives can be fulfillment is possible?
- 3) Explain Right shift bitwise operator and its usage in embedded system.

Q.3 Answer the following questions in detail (16)

Q.3 [A] Answer the following questions in detail [Any Two] [10]

- 1) What is sensor? Explain Humidity sensor and IR sensor in detail.
- 2) Explain IE, TCON and TMOD register of 8051 microcontroller.
- 3) Analyze given program and write output of program. Write comments after each and every instruction to explain program logic.

```
int i=05;  
main()
```

```

{   int num=0x03
    Printf(“variable value I = %d”,i);
    i++;
    reque ();
    Printf(“variable value I = %d”,i);
    repo ();
    i++;
    Printf(“variable value I = %d”,i);
    i=i+1;
    {   int num=0x05
        reque ();
        Printf(“variable value I = %d”, num);
        num++;
    }
    Printf(“variable value I = %d”, num);
    repo ();
    Printf(“variable value I = %d”,i);
}
reque();
{   Static int j =12;
    Printf(“variable value j = %d”,j);
    j=i+j;
    Printf(“variable value j = %d”,j);
}
repo();
{   Static int k =09
    Printf(“variable value j = %d”,k);
    k=i+k;
    Printf(“variable value i = %d”,i);
    j++;
}

```

Q.3. [B] Answer the following questions in brief [Any Two] [06]

- 1) Draw block diagram of Successive Approximation type Analog to digital convertor
- 2) List out different applications of RFID and explain any one application of RFID in detail
- 3) Explain the two power saving mode of operation of 8051 microcontroller.

Q.4. Answer the following questions in detail (08)

Q.4. [A] Draw 8051 microcontroller architecture and Explain I/O PORT functioning of 8051 microcontroller. [05]

OR

Q.4. [A] Describe SPI communication concept and explain SCON register in detail [05]

Q.4. [B] Explain privacy and security related issues in Internet of thing based system and also discuss about possible ethical solutions to resolve such issues [03]

OR

Q.4. [B] List out different Real time Operating System (RTOS) and explain weighted round robin scheduling concept in RTOS. [03]



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B.Sc. I.T. (Sem. 4) Examination April - 2025

I.T. Business Communication - 2 - Paper : 401

सूचना : / Instructions

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नीचे दशावेल निशानीवाणी विगतो उत्तरवही पर अवश्य लपवी.
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Name of the Examination:

B.Sc. I.T. (Sem. 4)

Name of the Subject :

I.T. Business Communication - 2 - Paper : 401

Subject Code No.: **2511001104055001**

Seat No.:

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Student's Signature

Q.1 Draft a Professional Presentation on the following: (Any 1) (05)

- (1) Interview Process in IT
- (2) Importance of GD in an Interview

Q.2 (A) Write the soft-skills required for the following positions: (05)

- (1) Project Leader
- (2) Software Developer

Q.2 (B) Attempt the following: (05)

- (1) How do you highlight your projects in your resume? Demonstrate with an example.
- (2) Draft an objective statement for the resume for the post of a web-developer in an IT Company.

Q.3 (A) Draft answers to the following Interview questions: (Any 2) (05)

- (1) Describe your strengths and weaknesses.
- (2) How do you handle sudden changes in a project?
- (3) How do you meet deadlines?
- (4) Where do you see yourself in five years?

Q.3 (B) Read the advertisement and find words matching the definitions: (05)

Your mobile workers can be more productive!

With our fabulous new hand-held devices, your mobile workers can be safer and more productive at the same time! Have no more paperwork that takes up workers' time and that can get lost! Know where your workers are at any time!

We can customize devices for any situation. As an example, let's look at devices that we've customized for traffic wardens:

The devices have cameras and GPS so the warden can take photographs of illegally parked cars. The device automatically tags the photographs with location and time. Then optical character recognition (OCR) technology can read the car's registration number from the photograph and transmit it wirelessly to a central database. The warden saves time because there is no data entry.

- (1) Change something to make it suit a special purpose
 - (2) Add electronic information to something, e.g. a photo
 - (3) The position of something
 - (4) Changing written or printed words to data that a computer can understand
 - (5) Give information
-