

**FIRST I.A Test**

|              |                            |              |          |
|--------------|----------------------------|--------------|----------|
| Subject Name | DATABASE MANAGEMENT SYSTEM | Subject Code |          |
| Semester     | V (SEC-1 & 2)              | Date:        | 8/9/2026 |
| Duration     | 75 MINUTES                 | Max Marks:   | 30       |

Answer any **FIVE** Questions from the following

| Q.No. | <b>PART-A</b>                                                  | MARKS | CO  | BTL | PO  |
|-------|----------------------------------------------------------------|-------|-----|-----|-----|
| 1     | Define DBMS                                                    | 2     | CO1 | L1  | PO2 |
| 2     | List the advantages of database approach                       | 2     | CO1 | L2  | PO3 |
| 3     | What do you mean by data independence. List its types.         | 2     | CO1 | L2  | PO3 |
| 4     | Define the datatype char and varchar with an example for each. | 2     | CO3 | L2  | PO3 |
| 5     | Discuss update command, give its syntax and an example         | 2     | CO3 | L2  | PO3 |
| 6     | What are nested queries. Give an example.                      | 2     | CO3 | L2  | PO3 |

Answer any **TWO** Questions from the following

| Q.No | <b>PART-B</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MARKS | CO  | BTL    | PO  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--------|-----|
| 1    | Consider the following tables<br>Employee(fname, minit, lname, ssn, bdate, address, sex, salary, super_ssn, dno)<br>Department(dname, dnumber, mgr_ssn, mgr_start_date)<br>Dept_locations(dnumber, dlocation)<br>Project(pname, pnumber, plocation, dnum)<br>Works_on(essn, pno, hours)<br>Dependent(essn, dependent_name, sex, bdate, relationship)<br>Write the SQL queries for the following.<br>i) For each employee, retrieve the employee's first and last name and the first and last name of his or her supervisor.<br>ii) For every project located in Stafford, List the project number, the controlling department number and the department's manager last name, address, birthdate. | 5     | CO3 | L2, L3 | PO3 |
| 2    | Consider the database in Q.1<br>Write the SQL queries for the following<br>i) Retrieve the names of employees who live in Houston, Texas.<br>ii) For each department that has more than 2 employees, retrieve the department number and the number of employees.                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5     | CO3 | L2, L3 | PO3 |
| 3    | Consider the database in Q.1<br>Write the SQL queries for the following<br>i) Retrieve project number, project location, department number, name of handling department and average salaries of the employees.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5     | CO3 | L3     | PO2 |

Answer any ONE Question from the following

| Q.No. | <u>PART-C</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | MARKS | CO  | BTL | PO  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|-----|
| 1     | <p>Consider the following schema for a Library Database:</p> <p><b>PUBLISHER</b> (<u>Publisher_Name</u>, Address, Phone)</p> <p><b>BOOK</b> (<u>Book_id</u>, Title, <u>Publisher Name</u>, Pub_Year)</p> <p><b>BOOK_AUTHORS</b> (<u>Book_id</u>, <u>Author_Name</u>)</p> <p><b>LIBRARY_BRANCH</b> (<u>Branch_id</u>, Branch_Name, Address)</p> <p><b>BOOK_COPIES</b> (<u>Book_id</u>, <u>Branch_id</u>, No-of_Copies)</p> <p><b>CARD</b> (<u>CARD_NO</u>)</p> <p><b>BOOK_LENDING</b> (<u>Book_id</u>, <u>Branch_id</u>, <u>Card No</u>,<br/><u>Date_Out</u>, <u>Due_Date</u>)</p> <p>Write the SQL queries for the following</p> <p>i) Retrieve details of all books in the library id, title, name of publisher, authors, number of copies in each branch.</p> <p>ii) Create a view of all books and its number of copies that are currently available in the Library.</p> | 10    | CO3 | L4  | PO3 |
| 2     | Discuss the characteristics of database approach                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 10    | CO1 | L3  | PO3 |

### First Internal Assessment Test

|              |                                      |              |            |
|--------------|--------------------------------------|--------------|------------|
| Subject Name | Finite Automata and Formal Languages | Subject Code |            |
| Semester     | B.E V Sem (Sec 1 & 2)                | Date:        | 07/09/2026 |
| Duration     | 75min                                | Max Marks:   | 30         |

Answer any **FIVE** Questions from the following

| Q. No. | PART-A                                                                                                                                  | MARKS | CO  | BTL | PO      |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|---------|
| 1      | Define alphabet and Language with an example.                                                                                           | 2     | CO1 | L1  | PO 1,2  |
| 2      | Draw DFA to accept strings of a's and b's ending with abb.                                                                              | 2     | CO1 | L2  | PO1,2,3 |
| 3      | Design a DFA to accept the strings of a's and b's having not more than 3 a's.                                                           | 2     | CO1 | L2  | PO 2,3  |
| 4      | Obtain regular expression to accept strings of a's and b's such that every block of four consecutive symbols contains at least two a's. | 2     | CO1 | L1  | PO 1,2  |
| 5      | Write regular expression for the Strings of a's and b's ending with b and has no substring aa.                                          | 2     | CO1 | L1  | PO 1,2  |
| 6      | Give regular expression for the Strings of a's and b's whose length is either even or multiple of 3.                                    | 2     | CO1 | L3  | PO 2,3  |

Answer any **TWO** Questions from the following

| Q. No. | PART-B                                                                                                                                | MARKS | CO  | BTL | PO       |
|--------|---------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|----------|
| 1      | Define the following with an example.<br>i) String ii) String reversal iii) Prefix of string<br>iv) Suffix of string v) String length | 5     | CO1 | L1  | PO 1,2   |
| 2      | Draw a DFA to accept set of all strings on alphabet $\Sigma=\{0,1\}$ that either begins or ends or both with substring 01.            | 5     | CO1 | L2  | PO 1,2,3 |
| 3      | Draw a DFA to accept strings of a's and b's ending with ab or ba.                                                                     | 5     | CO1 | L3  | PO 2,3   |

Answer any ONE Question from the following

| Q. No.          | <u>PART-C</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MARKS    | CO  | BT<br>L | PO                           |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----|---------|------------------------------|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|----|------------------------------|
| 1               | Obtain $\epsilon$ -NFA for the regular expressions $a^*+b^*+c^*$<br><i>Pre-define DFA.</i>                                                                                                                                                                                                                                                                                                                                                                                                                    | 10       | CO1 | L4      | PO 1<br>PO 2<br>PO 3<br>PO 4 |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| 2               | Minimize the states of following DFA.<br><table border="1"><thead><tr><th><math>\delta</math></th><th>a</th><th>b</th></tr></thead><tbody><tr><td><math>\rightarrow A</math></td><td>B</td><td>F</td></tr><tr><td>B</td><td>G</td><td>C</td></tr><tr><td>* C</td><td>A</td><td>C</td></tr><tr><td>D</td><td>C</td><td>G</td></tr><tr><td>E</td><td>H</td><td>F</td></tr><tr><td>F</td><td>C</td><td>G</td></tr><tr><td>G</td><td>G</td><td>E</td></tr><tr><td>H</td><td>G</td><td>C</td></tr></tbody></table> | $\delta$ | a   | b       | $\rightarrow A$              | B | F | B | G | C | * C | A | C | D | C | G | E | H | F | F | C | G | G | G | E | H | G | C | 10 | CO1 | L4 | PO 1<br>PO 2<br>PO 3<br>PO 4 |
| $\delta$        | a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | b        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| $\rightarrow A$ | B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | F        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| B               | G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | C        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| * C             | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | C        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| D               | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | G        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| E               | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | F        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| F               | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | G        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| G               | G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | E        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |
| H               | G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | C        |     |         |                              |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |     |    |                              |

**First Internal Assessment Test**

|              |                                   |              |            |
|--------------|-----------------------------------|--------------|------------|
| Subject Name | CRYPTOGRAPHY AND NETWORK SECURITY | Subject Code |            |
| Semester     | V SEM – SECTION 1                 | Date:        | 09-09-2026 |
| Duration     | 75 MINS                           | Max Marks:   | 30         |

Answer any **FIVE** Questions from the following

| Q.No. | <b>PART-A</b>                                                                     | MARKS | CO  | BTL | PO  |
|-------|-----------------------------------------------------------------------------------|-------|-----|-----|-----|
| 1     | Define network security and list any two security services.                       | 2     | CO1 | L1  | PO1 |
| 2     | Define cryptography and identify its two major types.                             | 2     | CO1 | L1  | PO1 |
| 3     | State what is meant by a block cipher and a stream cipher.                        | 2     | CO2 | L1  | PO1 |
| 4     | Explain the purpose of a public key and a private key in public key cryptography. | 2     | CO2 | L2  | PO1 |
| 5     | State the mathematical conditions required for selecting RSA keys e and d.        | 2     | CO2 | L1  | PO1 |
| 6     | Differentiate between plaintext and ciphertext.                                   | 2     | CO1 | L2  | PO1 |

Answer any **TWO** Questions from the following

| Q.No. | <b>PART-B</b>                                                   | MARKS | CO  | BTL | PO    |
|-------|-----------------------------------------------------------------|-------|-----|-----|-------|
| 1     | Explain the model for network security with a suitable diagram. | 5     | CO1 | L2  | PO1   |
| 2     | Compare cryptography and steganography.                         | 5     | CO1 | L4  | PO2   |
| 3     | Explain the concept of public key cryptography.                 | 5     | CO2 | L3  | PO1,3 |

Answer any **ONE** Question from the following

| Q.No. | <b>PART-C</b>                                                                                                                                                                            | MARKS | CO           | BTL   | PO      |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|-------|---------|
| 1     | Describe and analyze DES in detail.                                                                                                                                                      | 10    | CO2          | L4    | PO1,2,5 |
| 2     | For RSA, let $p=3$ , $q=11$ . Apply the RSA algorithm to calculate $n$ , $\phi(n)$ , the public key $e$ , given $d=7$ ; and demonstrate encryption and decryption of the message $M=5$ . | 10    | CO1,<br>CO 2 | L3,L4 | PO1,2,5 |



**Khaja Bandanawaz University, Kalaburgi.**  
**Faculty of Engineering & Technology**  
**Department of Computer Science and Engineering**

**FIRST INTERNAL ASSESSMENT TEST**

|              |                                         |              |            |
|--------------|-----------------------------------------|--------------|------------|
| Subject Name | INTRODUCTION TO ARTIFICIAL INTELLIGENCE | Subject Code |            |
| Semester     | B.E V (Sec: 1 and 2)                    | Date:        | 07/09/2026 |
| Duration     | 1 hour 15 mins                          | Max Marks:   | 30         |

Answer any **FIVE** Questions from the following

| Q.No. | <b>PART-A</b>                                               | MARKS | CO  | BTL | PO  |
|-------|-------------------------------------------------------------|-------|-----|-----|-----|
| 1     | Define Artificial Intelligence with an example              | 2     | CO1 | L1  | PO1 |
| 2     | Mention any four ethical issues in Artificial Intelligence  | 2     | CO1 | L1  | PO8 |
| 3     | What is an agent? Give an example                           | 2     | CO1 | L1  | PO1 |
| 4     | Define a percept and a percept sequence                     | 2     | CO1 | L1  | PO1 |
| 5     | State the meaning of fringe and leaf nodes in a search tree | 2     | CO1 | L2  | PO1 |
| 6     | What is meant by Uniform Cost Search (UCS)                  | 2     | CO1 | L3  | PO1 |

Answer any **TWO** Questions from the following

| Q.No. | <b>PART-B</b>                                                                 | MARKS | CO  | BTL | PO  |
|-------|-------------------------------------------------------------------------------|-------|-----|-----|-----|
| 1     | Discuss the different types of Artificial Intelligence with suitable examples | 5     | CO1 | L2  | PO1 |
| 2     | Explain the concept of a rational agent with the optimal performance measure  | 5     | CO1 | L2  | PO1 |
| 3     | Describe the steps involved in designing a problem-solving agent              | 5     | CO1 | L2  | PO1 |

Answer any **ONE** Question from the following

| Q.No. | <b>PART-C</b>                                                                       | MARKS | CO  | BTL | PO  |
|-------|-------------------------------------------------------------------------------------|-------|-----|-----|-----|
| 1     | Discuss in detail different types of task environment                               | 10    | CO1 | L2  | PO1 |
| 2     | Describe Breadth-First Search (BFS) along with its algorithm and a suitable example | 10    | CO1 | L3  | PO3 |

### First Internal Assessment Test

|              |                      |              |            |
|--------------|----------------------|--------------|------------|
| Subject Name | SOFTWARE ENGINEERING | Subject Code |            |
| Semester     | B.E - V SEM          | Date:        | 07/09/2026 |
| Duration     | 1 HOUR 15 MINUTES    | Max Marks:   | 30         |

Answer any **FIVE** Questions from the following

| Q. No. | PART-A                                                                      | MARKS | CO  | BTL | PO  |
|--------|-----------------------------------------------------------------------------|-------|-----|-----|-----|
| 1      | Define Software.                                                            | 2     | CO1 | L1  | PO1 |
| 2      | Mention the steps in generic process model.                                 | 2     | CO1 | L1  | PO2 |
| 3      | Define requirement engineering.                                             | 2     | CO2 | L1  | PO1 |
| 4      | Mention the key stages of requirement engineering process.                  | 2     | CO2 | L1  | PO1 |
| 5      | List the key requirement elicitation techniques in requirement engineering. | 2     | CO2 | L1  | PO1 |
| 6      | Define Scenario based and Behavioral model                                  | 2     | CO1 | L1  | PO2 |

Answer any **TWO** Questions from the following

| Q. No. | PART-B                                                                      | MARKS | CO  | BTL    | PO  |
|--------|-----------------------------------------------------------------------------|-------|-----|--------|-----|
| 1      | Briefly explain the various software myths.                                 | 5     | CO1 | L2     | PO2 |
| 2      | With the help of an illustrative diagram explain incremental process model. | 5     | CO1 | L3     | PO1 |
| 3      | Explain the core characteristic and key phases of CBD process model.        | 5     | CO1 | L2, L3 | PO2 |

Answer any **ONE** Questions from the following

| Q. No. | PART-C                                                            | MARKS | CO  | BTL   | PO  |
|--------|-------------------------------------------------------------------|-------|-----|-------|-----|
| 1      | Explain the Boehm's Spiral model of software development.         | 10    | CO1 | L2,L3 | PO3 |
| 2      | Explain the unified process model with the help of a neat diagram | 10    | CO1 | L2    | PO2 |