Daffodil International University

**Department of Computer Science and Engineering**

**Faculty of Science & Information Technology**

**Midterm Examination, Summer 2025**

**Course Code: CSE221, Course Title: Object Oriented Programming**

**Level:2 Term:2 Batch: ALL**

**Time: 1.5 Hours** **Marks: 25**

Answer ALL Questions

*[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]*

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|---|---|---|---|---|
| 1. | | A **Food-Delivery Platform** connects Customers with Restaurants.<br><br>• A Customer has custid, name and email<br>• Each Customer places many Orders.<br>• An Order has an *orderID*, *orderDate*, and *totalAmount*.<br>• Each Order contains one or more MenuItems (name, price).<br><br>A class-level attribute is required in Order to keep the running total of orders placed on the platform. | | |
| | | **a) Business-Case Analysis** | 5 | CO1 |
| | | *a) List three attributes* (with Java data types) for Customer and Order.<br>*b) Identify two behaviours* (methods) relevant to classes in the case.<br>c) Describe the relationships among Customer, Order and MenuItem, including *multiplicity*. | | |
| | | **b) UML Class Diagram** | 6 | CO3 |
| | | Draw a UML diagram comprising **Customer, Order** and **MenuItem** showing:<br><br>• attributes with visibility and data types<br>• methods you identified in part a)<br>• association links with multiplicities<br>• the **static attribute** that tracks total orders | | |
| | | **c) Java Implementation** | 6 | CO4 |
| | | Implement the UML model: | | |

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|---|---|---|---|---|
| | | 1. Create the three classes with constructors and the members from UML model.<br>2. Declare and update the static attribute in **Order**.<br>3. In a `main()` method, instantiate **one Customer** who places **two Orders**, each containing at least one **MenuItem**.<br>4. Print a summary showing customer name, order IDs, item names and **total orders so far**.<br><br>**d) Reasoning on Design Choices**<br><br>Why is the *totalOrders* counter best declared **static**? Write 3 points which may further enhance your model. | 3 | CO2 |
| 2. | | **Problem Solving**<br><br>**Scenario:** A **Car-Pooling Service** matches **Drivers** (driverID, rating) with **Rides** (rideID, distance, fare) requested by **Riders** (riderID, name). A Rider can join many Rides; a Ride can include many Riders; a Driver drives many Rides but each Ride has one Driver.<br><br>Tasks<br><br>1. *Identify* the classes and principal attributes (no methods needed).<br>2. *Sketch a high-level UML class diagram with correct multiplicities (show Driver–Ride and Rider–Ride separately).* | 5 | CO3 |

*Good Luck*

# Daffodil International University

## Faculty of Science & Information Technology

## Department of Computer Science & Engineering

**Mid Examination, Summer 2025**

**Course Code: CSE215 Course Title: Electronic Devices and Circuits**

**Level: 2 Term: 2 Batch: 66**

**Time: 1.50 Hrs** **Full Marks: 25**

**Answer all the following questions**

***[All portions of each question must be answered sequentially]***

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|---|---|---|---|---|
| Q1. | *a.* | **Define** hole current. | 1 | CO1 |
| | *b.* | **Recall** collector-base current with emitter open ($I_{CBO}$). | 1 | |
| | *c.* | **Name** the components required to convert pulsating DC into pure DC. | 1 | |
| | *d.* | **Recall** the input and output characteristics of common base connection. | 1 | |
| | *e.* | **Define** a clipper circuit and a clamper circuit with respect to their function. | 1 | |
| Q2. | *a.* | **Show** by deriving the relevant expressions that the ripple factor in half-wave rectification exceeds that of full-wave rectification by approximately 2.5 times. | 4 | CO2 |
| | *b.* | **Explain** the formation of potential barrier in a pn junction with necessary figure. | 4 | |
| Q3. | *a.* | A transistor is operating in a common-emitter configuration. The collector supply voltage is 12 V, and the voltage drop across the collector resistor $R_C$ (which has a resistance of 1 kΩ) is 2 V. Given that the transistor's common-base current gain is $\alpha=0.98$. **Solve** for:<br>i) The collector-emitter voltage $V_{CE}$<br>ii) The base current $I_B$ | 4 | CO3 |
| | *b.* | A Full-Wave rectifier uses two diodes, the internal resistance of each diode may be assumed constant at 20 Ω. If the peak inverse voltage is 150 V & load resistance is 980 Ω then **solve** it to get the followings:<br>i) Mean load current<br>ii) R.M.S. value of load current | 4 | |
| | *c.* | **Solve** for the maximum and minimum values of Zener diode current for the given circuit below. Here, three Zener diodes of 20V are connected in series in Fig.1. | 4 | |

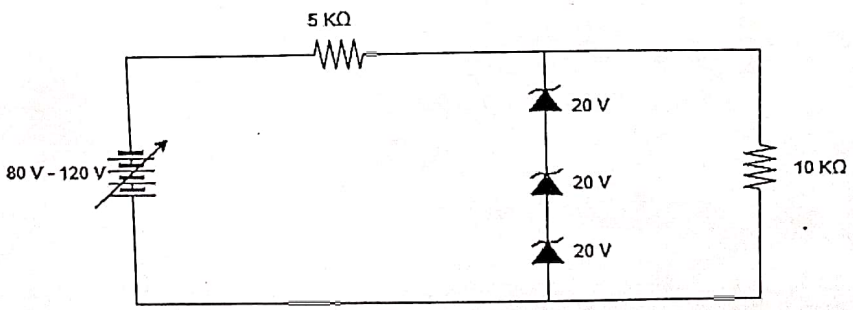


Fig. 1

# Daffodil International University

**Faculty of Science & Information Technology**
**Department of Computer Science & Engineering**
**Mid Examination, Summer 2025**
**Course Code: AOL-101 , Course Title: Art of Living**
**Level:2 Term:2 Batch:66**

**Time: 01:30 Hrs** **Marks: 25**

## Answer ALL Questions [Optional]

*[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]*

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|---|---|---|---|
| 1. | Sara, a university student, is passionate about photography but has never shared her work due to fear of criticism. Her friends often encourage her to participate in the university's creative showcase, but she hesitates every year. Recently, she attended a seminar on self-esteem and personal growth, where the speaker emphasized stepping out of comfort zones to build confidence and resilience.<br><br>**Illustrate how Sara's self-esteem is influencing her reluctance to "come out of the box" and participate in the showcase. Then, propose Three realistic actions with proper explanation that Sara could take to gradually build her self-confidence and ensure personal growth in this area.** | [5] | CO1 |
| 2. | *Once there was an old man who had planted an apple tree in his youth. Over the years, the tree gave him fruit, shade, and joy. As time passed, the man grew old and so did the tree. The apples became fewer, and the leaves turned dry. The man's children, now grown and busy with their own lives, rarely visited him. One day, the tree fell during a storm, and the old man sat beside it, remembering the times he had spent resting under its shade with his children. When his son finally came to see him, the old man smiled and said, "You know, life is a lot like this tree. It gives and gives, just like your parents do. But when we forget to care for it, it quietly withers away." The son stood silent, realizing how long it had been since he last sat with his father.*<br><br>**Explain how the story of "The Old Man and the Apple Tree" reflects the importance of caring for parents. Mention at least three key lessons that can be applied to real life.** | [5] | CO2 |
| 3. | Rafiq applied for a customer service position at a well-known retail company. On the interview day, he arrived late and seemed distracted. During the waiting period, he was seen complaining about the company to other candidates and ignored the receptionist's instructions. In the interview, although Rafiq had excellent product knowledge, he appeared impatient and gave short answers. Meanwhile, another candidate, Laila, arrived early, dressed smartly, greeted politely, and stayed calm throughout the process. Laila's respectful attitude and professionalism | [5] | CO2 |

| | | | |
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| | impressed the panel more than Rafiq's technical skills. She was offered the job.<br>**Examine the statement, "Professional success depends as much on etiquette as on skills," in the context of Rafiq's and Laila's interview experiences and discuss technical skills alone are enough to succeed in a competitive job market.** | | |
| **4.** | Tania is a student who forgets many things after studying. Before exams, she reads her notes again and again but still gets confused. One day; she joins a session on "Learning to Learn" and hears about better study methods like active recall.<br><br>**Identify how can "Learning to Learn" methods help Tania do better in her studies? Demonstrate in simple words with any two techniques she can use and how they will help her remember better.** | **[5]** | **CO3** |
| **5.** | Dr. Meera Sharma is a senior quality control officer in a reputed pharmaceutical company that manufactures life-saving drugs. During a routine inspection, she discovers that a particular batch of drugs has not met the safety standards. However, her manager insists on clearing the batch for distribution due to a looming deadline and significant financial pressures.<br>**(a) Show how personal ethics are more important in reinforce ethical practices in organizations.**<br>**(b) Apply the five ways to start living ethically today role of frameworks in ethical decision-makers like Dr. Sharma.** | **[2.5+2.5=5]** | **CO3** |