Date: 19/01/2026

NATIONAL SKILL TRAINING INSTITUTE (WOMEN), INDORE

ARTIFICIAL INTELLIGENCE PROGRAMMING ASSISTANT
(MODULE 3 - INTERNAL PRACTICAL)
2025-26

Set 3

TIME: 3 Hrs **MARKS: 50**

Note: Attempt any 2

1. **Create a School Database with the following tables:**
   - **Students** – StudentID INT PRIMARY KEY, FirstName VARCHAR(50), LastName VARCHAR(50), EnrollmentDate DATE
   - **Courses** – CourseID INT PRIMARY KEY, CourseName VARCHAR(100), TeacherID INT, FOREIGN KEY (TeacherID) REFERENCES Teachers(TeacherID)
   - **Teachers** – TeacherID INT PRIMARY KEY, FirstName VARCHAR(50), LastName VARCHAR(50), HireDate DATE
   - **Enrollments** – EnrollmentID INT PRIMARY KEY, StudentID INT, CourseID INT, FOREIGN KEY (StudentID) REFERENCES Students(StudentID), FOREIGN KEY (CourseID) REFERENCES Courses(CourseID)
   - **Exams** – ExamID INT PRIMARY KEY, CourseID INT, ExamDate DATE, FOREIGN KEY (CourseID) REFERENCES Courses(CourseID)
   - **Grades** – GradeID INT PRIMARY KEY, ExamID INT, StudentID INT, Grade CHAR(2), FOREIGN KEY (ExamID) REFERENCES Exams(ExamID), FOREIGN KEY (StudentID) REFERENCES Students(StudentID)

   Solve the following query questions:
   a. List all students with their enrolled courses and teachers.
   b. Find the number of students enrolled in each course.
   c. Show each student’s grades in exams with course details.
   d. Find students who got an 'A' in any exam (nested query).
   e. Show the average grade per course.

2. **Create a Superstore Sales Database with the following tables:**
   - **Customers** – CustomerID INT PRIMARY KEY, CustomerName VARCHAR(100), Segment VARCHAR(50)
   - **Products** – ProductID INT PRIMARY KEY, ProductName VARCHAR(100), Category VARCHAR(50), SubCategory VARCHAR(50)
   - **Regions** – RegionID INT PRIMARY KEY, RegionName VARCHAR(50)
   - **Sales** – SaleID INT PRIMARY KEY, OrderDate DATE, CustomerID INT, ProductID INT, RegionID INT, Quantity INT, SalesAmount DECIMAL(10,2), Profit DECIMAL(10,2), FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID), FOREIGN KEY (ProductID) REFERENCES Products(ProductID), FOREIGN KEY (RegionID) REFERENCES Regions(RegionID)
   - **Returns** – ReturnID INT PRIMARY KEY, SaleID INT, ReturnDate DATE, Reason VARCHAR(100), FOREIGN KEY (SaleID) REFERENCES Sales(SaleID)

   Solve the following query questions:
   a. Show total sales and profit per region.
   b. Find the best-selling product (by total sales amount).
   c. List customers who returned any products.
   d. Rank customers by total sales amount.
   e. Find monthly sales trends (total sales per month).

3. **Create a Airline Reservation Database with the following tables:**
   - **Airports** – AirportID INT PRIMARY KEY, Name VARCHAR(100), City VARCHAR(50), Country VARCHAR(50)
   - **Flights** – FlightID INT PRIMARY KEY, FlightNumber VARCHAR(20), OriginID INT, DestinationID INT, DepartureTime DATETIME, ArrivalTime DATETIME,Capacity INT, FOREIGN KEY (OriginID) REFERENCES Airports(AirportID), FOREIGN KEY (DestinationID) REFERENCES Airports(AirportID)
   - **Passengers** – PassengerID INT PRIMARY KEY, FirstName VARCHAR(50), LastName VARCHAR(50), PassportNo VARCHAR(20)
   - **Reservations** – ReservationID INT PRIMARY KEY, FlightID INT, PassengerID INT, SeatNo VARCHAR(10), BookingDate DATE, FOREIGN KEY (FlightID) REFERENCES Flights(FlightID), FOREIGN KEY (PassengerID) REFERENCES Passengers(PassengerID)
   - **Crew** – CrewID INT PRIMARY KEY, FlightID INT, CrewName VARCHAR(100), Role VARCHAR(50), FOREIGN KEY (FlightID) REFERENCES Flights(FlightID)

   Solve the following query questions:
   a. List all reservations with passenger name, flight number, and seat number.
   b. Show flights departing in May 2023.
   c. Check seat availability for each flight (Capacity - Reserved Seats).
   d. Find all crew members assigned to each flight.
   e. Find passengers who booked flights from London (Heathrow).