Assignment Booklet

MSCRWEE Programme

M.Sc (Renewable Energy and Environment)

Third Semester (Compulsory)	
MRW-005	Solar Energy and Applications
MRW-006	Bioenergy Conversion and Utilization
MRW-007	Energy Economics and Planning

Third Semester (Electives)	
MRWE-001	Nano Technology in Energy & Environment
MRWE-002	Energy Storage
MEV-021	Introduction to Climate Change
MEVE-001	Environmental Impact Assessment for Environmental Health
MCS-224	Artificial Intelligence and Machine Learning
MCS-226	Data Science and Big Data
MCS-227	Cloud Computing and IoT
MCS-231	Mobile Computing

SCHOOL OF ENGINEERING & TECHNOLOGY
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
Maidan Garhi, New Delhi – 110 068

JANUARY 2026

Dear Student,

Please read the information on assignments in the Programme Guide that we have sent you after your enrolment. A weightage of 30%, as you are aware, has been earmarked for continuous evaluation, **which wouldconsist of one tutor-marked assignment** for this Programme. The assignment for MSCRWEE (Third semester) has been given in this booklet.

Instructions for Formatting Your Assignments

Before attempting the assignment, please read the following instructions carefully:

1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ENROLLMENT NO :……

NAME :……

ADDRESS :……

……

……

PROGRAMME CODE: ……..

COURSE CODE: ……

COURSE TITLE: ……

STUDY CENTRE: ……..…… DATE: ……..……...

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION ANDTO AVOID DELAY.

2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.

3) Leave 4 cm margin on the left, top and bottom of your answer sheet.

4) Your answers should be precise.

5) These assignments submitted should be hand written in your own hand writing.

We strongly suggest that you should retain a copy of your answer sheets.

6) You cannot fill the Exam Form without submission of the assignments. So solve it and **submit it at the earliest.** If you wish to appear in the **TEE, June 2026,** you should submit your TMAs by **April 30, 2026.** Similarly, if you wish to appear in the **TEE, December 2026,** you should submit your TMAs by **September 30, 2026.**

7) Assignments will be submitted at **your respective regional centre.**

We wish you good luck!

Assignment -5

(To be done **after** studying the course material)

Course Code: MCS-224
Course Title: Artificial Intelligence and Machine Learning
Assignment Code: MCS-224/TMA/2026
Maximum Marks: 100

Last Date of Submission: April 30, 2026 (For June TEE), September 30, 2026 (For December TEE)
Note:

1. **For any question worth 10 marks the word limit is 350 words, for a 20 mark question it is 550 words.**
2. **Attempt all questions. All questions carry equal marks.**

Q.1	Compare ANI, AGI and ASI, in context of AI. Also, discuss the major applications of AI.	10
Q.2	What is Turing Test? What is the Criticism to the Turing Test?	10
Q.3	Compare Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL)	10
Q.4	What are Intelligent agents in AI? Briefly discuss the properties of Agents.	10
Q.5	Discuss the transforming an FOPL Formula into Prenex Normal Form with suitable example. Also, discuss Skolomization with a suitable example.	10
Q.6	Explain Forward Chaining Systems and Backward Chaining Systems with a suitable example for each.	10
Q.7	Write Back Propagation algorithm, and showcase its execution on a neural network of your choice. (make suitable assumptions if any)	10
Q.8	Briefly discuss the various Ensemble methods.	10
Q.9	For the given points of two classes red and blue: Blue: { (1, 2), (2,1), (1,-2), (2,-2)} Red : { (4,-1), (4,1), (5,-1), (6,1)} Plot a graph for the red and blue categories. Find the support vectors and optimal separating line.	10
Q.10	Consider the two-dimensional patterns (2, 2), (3, 6), (4, 4), (5, 6), (6, 7), (7, 8), (8,8) and (9, 10). Using the PCA Algorithm, calculate the primary component.	10