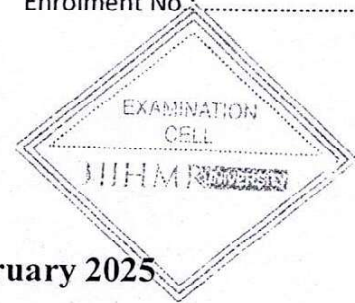


**DM-753 Natural Resource Management, Climate Change and Resilience****Time - 3 Hours****Maximum Marks: 50 (Minimum Marks: 20)****Instructions to students:**

- This question paper contains 3 printed pages.
- Don't write anything on the Question Paper except writing your Enrolment No.

Part A**(Maximum Marks: 5)****Q1. Choose the most appropriate option for the following questions (1 mark each):**

- a) Leadership is an essential element of the design principle of Long Enduring Commons is endorsed by
 - A. Robert Wade
 - B. Elnor Ostrom
 - C. Balland and Plateau
 - D. Madhu Sarin
- b) Cast your bread in the river and you will find it after many days is a case of
 - A. Vertical reciprocity.
 - B. Horizontal reciprocity.
 - C. General reciprocity.
 - D. Specific reciprocity.
- c) Goal to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." Was adopted at
 - A. Rio de Janeiro
 - B. Paris
 - C. Copenhagen
 - D. Glasgow
- d) The notion of Common is not a freely accessible resource for all.
 - A. True
 - B. Partly True
 - C. False
 - D. None of the above
- e) Montreal Protocol aimed at
 - A. Reduction of GHG
 - B. Reduction of Ozone Layer Depletion
 - C. Reduction of Coal Use
 - D. Reduction of CFC

Part B**(Maximum Marks: 15)****Write short notes on any three of the following (5 marks each):**

- Q2.** Net Zero
- Q3.** Kyoto Protocol (UNFCCC)
- Q4.** Tragedy of Commons
- Q5.** The Forest (Conservation) Amendment Act, 2023

**Part C****(Maximum Marks: 30)****Answer any two of the following questions in detail (15 marks each):**

- Q6. Read the following case studies and answer the questions given thereafter:**

The Samis are reindeer pastoralists living in the Finnmark, a territory including northern parts of Sweden, Finland and Norway. Domestication of reindeer is at least one thousand years old, and as a pastoral adaptation, reindeer herding has been reported since the 16th century. Generally, herds are moved around according to seasonal pasture conditions. Herd owners are organized into Siidas, on the basis of Kinship relations' these exhibit features of class. The members of a Siida live and migrate together and organize the annual calendar for grazing their reindeer herds. National borders restrict herd movements, but specific rules for crossing the border between Norway and Sweden have been made through an agreement between the governments of the two countries. Typically, a Siida will regroup three times during a year in accordance with grazing conditions. In the summer, reindeer will be gathered in large herds, medium-sized herds are formed in the winter and small herds during spring. As a general principle, the herd size is limited by the perceived carrying capacity of the grazing area. If the size is too large, individual owners will withdraw their animals from the common herd and join other herding units according to kinship relations and available pastures. Regrouping may involve intense competition among the Siida members.

The government of Norway and Sweden are trying to intervene in the Sami resource management system by regulating the number of reindeer in the herds. They have asked biologists to appraise the carrying capacity of the pastures. The biologists recommended that the number of reindeer be regulated in order to prevent overgrazing. Their analysis, tended to be based on the direct relationship between land and animals, ignoring the mediating role of the herd-owners who moved their herds between pasturelands in order to prevent overgrazing. In other words, the Sami resource management strategies were considered inappropriate, and the Siidas' authority regarding resource management not recognized. Yet, historically there have been no reports of overgrazing, except on a few occasions when wild reindeer were responsible for overgrazing. Mass starvation of reindeer has occurred only twice in this century: in the winters of 1917-18 and 1967-68. On both occasions, unfavorable weather conditions were responsible' early winter rainfall, followed by frost made it difficult for the reindeer to break through the layers of ice that covered the grass.

The extent of land available is also being reduced by reorganization of administrative borders. Earlier Samis would migrate to far off regions. Competing uses of the land (agriculture, tourism and mining), have also led to pressures on the land.

Questions

- (a) Analyse Pasture Management of Samis with the help of institutional design principle for governance framework given by Ostrom & Wade. (10)
- (b) Who brought disturbances in Sami Reindeer commons and how? (5)

- Q7. Define different types of property regimes for NRM and commons? Discuss in brief the history of NRM in India. Are the management of natural resource and the management of commons same? If not, how do they differ from each other?
- Q8. Define the relationship among optimum Sustainable yield (OSY), maximum sustainable yield (MSY), costs, maximum sustainable revenue in the context of any Subtractible natural resources with diagram. Discuss in brief how regulated commons can maintain OSY of a natural resource.

