

# GATE 2026 NM Question Paper

Time Allowed :3 Hour	Maximum Marks :100	Total Questions :65
----------------------	--------------------	---------------------

## General Instructions

Please read the following instructions carefully:

1. This question paper is divided into three sections:
  - **General Aptitude (GA):** 10 questions ( $5 \text{ questions} \times 1 \text{ mark} + 5 \text{ questions} \times 2 \text{ marks}$ ) for a total of 15 marks.
  - **Environmental Science and Engineering + Engineering Mathematics:**
    - **Part A (Mandatory):** 36 questions ( $1 \text{ questions} \times 1 \text{ mark} + 19 \text{ questions} \times 2 \text{ marks}$ ) for a total of 55 marks.
    - **Part B (Section 1):** Candidates can choose either Part B1 (Surveying and Mapping) or Part B2 (Section 2). Each part contains 16 questions ( $8 \text{ questions} \times 1 \text{ mark} + 11 \text{ questions} \times 2 \text{ marks}$ ) for a total of 30 marks.
2. The total number of questions is **65**, carrying a maximum of **100 marks**.
3. The duration of the exam is **3 hours**.
4. Marking scheme:
  - For 1-mark MCQs,  $\frac{1}{3}$  mark will be deducted for every incorrect response.
  - For 2-mark MCQs,  $\frac{2}{3}$  mark will be deducted for every incorrect response.
  - No negative marking for numerical answer type (NAT) questions.
  - No marks will be awarded for unanswered questions.
5. Ensure you attempt questions only from the optional section (Part B1 or Part B2) you have selected.
6. Follow the instructions provided during the exam for submitting your answers.

1. Let a Non-deterministic Finite Automaton (NFA) have 6 states over a finite alphabet. Which of the following cannot be the number of states in a minimal Deterministic Finite Automaton (DFA) that is equivalent to this NFA?

- (A) 1
- (B) 32
- (C) 65
- (D) 128

2. Let  $P, Q, R, S$  be relational schemas. Let “ $\rightarrow$ ” indicate a functional dependency (FD) in this context. Which of the following best describes the meaning of a functional dependency?

- (a) if then or
- (b) if then
- (c) if then
- (d) if and then

---

3. With respect to a TCP connection between a client and a server, which of the following is true?

- (a) TCP connection is half duplex
- (b) The client and server use a three-way handshaking mechanism
- (c) Before starting data transmission, client and server can initiate closing the connection at the same time
- (d) The server cannot initiate closing of the connection unless the client initiates closing of the connection

---

4. A single degree of freedom system is undergoing free oscillation. The natural frequency and damping ratio of the system are 1 rad/s and 0.01 respectively. The reduction in peak amplitude over three cycles is \_\_\_\_\_% (rounded off to one decimal place).

---

5. A ship moving at a steady forward speed of 10 m/s experiences a total resistance of 140 kN. The Quasi Propulsive Coefficient (QPC) is 0.70; the propeller shaft losses are 5% and the mechanical efficiency of the main engine is 80%. The indicated power of the main engine is \_\_\_\_\_ kW (rounded off to two decimal places).

---