GATE 2026 Metallurgical Engineering Question Paper

Time Allowed :3 Hours	Maximum Marks :100	Total Questions :65

General Instructions

Read the following instructions very carefully and strictly follow them:

1. Each GATE 2024 paper consists of a total of 100 marks. The examination is divided into two sections – General Aptitude (GA) and the Candidate's Selected Subjects. General Aptitude carries 15 marks, while the remaining 85 marks are dedicated to the candidate's chosen test paper syllabus.
2. GATE 2024 will be conducted in English as a Computer Based Test (CBT) at select centres in select cities. The duration of the examination is 3 hours.
3. MCQs carry 1 mark or 2 marks.
4. For a wrong answer in a 1-mark MCQ, 1/3 mark is deducted.
5. For a wrong answer in a 2-mark MCQ, 2/3 mark is deducted.
6. No negative marking for wrong answers in MSQ or NAT questions.

1. For laminar fluid flow through a smooth circular tube, the relation between friction factor (f) and Reynolds number (Re) is

(A) $f = \frac{16}{Re}$
(B) $f = \frac{24}{Re}$
(C) $f = \frac{16}{\sqrt{Re}}$
(D) $f = \frac{24}{\sqrt{Re}}$

---

2. Among the following options, a process for liquid-liquid separation is

(A) Smelting
(B) Roasting
(C) Sintering
(D) Calcination

---

3. The most effective concentration step for sulfide ores is

(A) Froth flotation
(B) Magnetic separation

(C) Gravity separation
(D) Electrostatic separation

---

4. Both creep resistance and tensile strength of a metal can be enhanced by

(A) increase in the grain size
(B) decrease in the grain size
(C) addition of dispersoids
(D) annealing

---

5. A rod is elastically deformed by a uniaxial stress resulting in a strain of 0.02. If the Poisson's ratio is 0.3, the volumetric strain is _____ (answer up to three decimal places)

---

6. Which one of the following manufacturing techniques is used for making window glass?

(A) Investment casting
(B) Patenting
(C) Spray forming
(D) Float-bath method

---

7. Dye penetrant test is based on the principle of

(A) polarized sound waves in liquid.
(B) magnetic domain.
(C) absorption of X-rays.
(D) capillary action.
