



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:III
Class:SY	Program:B.Tech
Branch Code:CHE	Pattern:2022
Name of Course:Engineering Materials	Course Code:CHE222004
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains ____ page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Marks CO

Question No. 1

- 1a) Explain method for Bending, with suitable diagram. (6) CO1

Question No. 2

- 2a) Write in detail about Fatigue Testing Method with suitable diagrams. (6) CO2

Question No. 3

- 3a) Explain various reactions involved in Iron-Iron carbide diagram. (8) CO3

OR

- 3b) Describe cast iron and their classification. (8) CO3

- 3c) Describe Iron-Iron Carbide Diagram in detail and different phases involved in it. (8) CO3

OR

- 3d) Describe equilibrium diagram for Brass in details. (8) CO3

Question No. 4

- 4a) Describe Transmission electron microscope in detail with suitable diagram. (8) CO4

OR

- 4b) Describe Electron microscope and its significance. (8) CO4

- 4c) Explain in detail synthesis and characterization of silver nanoparticles. (8) CO4

OR

- 4d) Explain Chemical Vapour deposition method for synthesis of Nano Materials. (8) CO4

Question No. 5

- 5a) Write the difference between Secondary electron and backscattered electron. (8) CO5

OR

5b) Write difference between electron microscope and light microscope. (8) CO5

5c) Explain Principle and working of Atomic Force Microscopes. (8) CO5

OR

5d) Explain Principle and working of transmission Electron Microscope (TEM). (8) CO5

..... **End of question paper**.....