Question Paper

Exam Date & Time: 20-Nov-2019 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTER FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATIONS NOV - 2019
III SEMESTER B.Sc (Applied Sciences) in Engg.
PROCESS PLANT MATERIALS [ICHM 233]

Marks: 100 **Duration: 180 mins.**

Answer 5 out of 8 questions.

1) Write a short note on the following: (10)

1A)
- Common methods of synthesis of nanoparticles.
- Common methods of characterization of nanoparticles.

1B) Briefly explain the following with specific example: (10)

- Application of ZnO nanoparticles in the Photocatalysis with specific example
- Application of iron oxide nanoparticles in the Fenton's process with specific example

2) Explain the stress-strain diagram with various standard terms and notations (10)

2A)

2B) Briefly explain the following (10)

- Various stages of creep
- Temperature dependency of creep Methods to prevent creep

3) Write a note on (10)

3A)
- Rockwell hardness test
- Brinell hardness test

3B) Briefly explain the various stages along with the specific reactions in the production of pig iron from iron ore. (10)

4) Briefly explain the following shaping processes of steel: (10)

4A)
- Die casting

- Extrusion

4B) Write the applications of the following metals as material of construction in chemical industry: (10)

- Titanium
- Tantalum
- Zirconium
- Silver
- Gold

5) Write a note on the following glasses: (10)

5A)

- Soda glass
- Flint glass
- Jena glass
- Quartz glass
- High silica glass

5B) Write a note on the following plastics with their applications: (10)

- PET
- PS

6) Briefly explain: (10)

6A)

- The process of rubber lining of materials and the need of rubber lining
- Applications of glass lined equipment

6B) Write a note on the following synthetic rubbers: (10)

- NBR
- Butyl rubber

7) Write a note on GFRP with its features and applications. (10)

7A)

7B) What is natural rubber? Write the sources and applications of natural rubber. (10)

8) Explain any five corrosion control methods (10)

8A)

8B) Write a note on the following corrosions briefly: (10)

- Crevice corrosion
- Hydrogen embrittlement

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