Question Paper

Exam Date & Time: 20-Nov-2018 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTER FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATIONS NOV - 2018
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) A) With specific examples, detail any five applications of nanomaterials in chemical engineering. (10)

B) Explain the following terms using stress-strain diagram (10)
a) Elastic region
b) Plastic region
c) Yield strength
d) Ultimate tensile strength
e) Fracture

2) A) Briefly explain the following (10)
a) Various stages of fatigue
b) S-N curve and fatigue limit
c) Methods to avoid fatigue.

B) With a neat figure explain the tensile testing procedure of a metal. Diagrammatically show the various stages in it: (10)

3) A) Write a note on (10)
a) Rockwell hardness test
b) Brinell hardness test

B) Explain the following processes briefly: (10)
a) Iron ore to pig iron
b) Pig iron to steel

4) A) Briefly explain the following shaping processes of steel: (10)
a) Forging
b) Rolling

B) How is the steel classified with respect to the carbon (10)

content? Explain with composition and applications:

5) Write a note on the following alloys with composition and applications: (10)

A)
a) Duralumin
b) Bronze
c) Gun metal
d) Monel
e) Nichrome

B) Write a note on the following plastics with their applications: (10)
a) PP
b) PS

6) Explain the various types of plastic moulding processes. (10)

A)

B) Write a note on the following synthetic rubbers: (10)
a) Styrene Butadiene Rubber
b) Butyl rubber

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

A)

B) Briefly explain the manufacture of glass-lined steel reactor (10)

8) Explain any five corrosion control methods (10)

A)

B) Write a note on the following corrosions briefly: (10)
a) Crevice corrosion
b) Hydrogen embrittlement

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