

**B.TECH SEM - III (2007 COURSE) (CHEMICAL ENGG.) : WINTER
- 2017**

SUBJECT : PRINCIPLES OF DESIGN & MATERIAL TECHNOLOGY

Day : **Monday**
Date : **15/01/2018**

W-2017-2353

Time : **10.00 AM TO 01.00 PM**
Max. Marks : **80**

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Figures to the right indicate **FULL** marks.
- 5) Assume suitable data if necessary.

SECTION – I

- Q.1** a) Define the following : **[06]**
i) Maximum working pressure **iii)** Design temperature
ii) Design pressure **iv)** Design stress
- b) Explain general construction, working of centrifugal pump. **[04]**
- c) Write in short about various types of supports. **[04]**
- Q.2** a) Explain Design of torrispherical head. **[07]**
b) Which are the design codes? Explain in detail. **[06]**
- Q.3** Explain working of globe valve, three way valve with diagram. **[13]**
- Q.4** Explain design of skirt support and leg support. **[13]**

SECTION – II

- Q.5** a) Give the engineering properties of metals, non metals and composites. **[06]**
b) Give types of organic protective coating with examples. **[04]**
c) Give types of composite materials used in chemical industry. **[04]**
- Q.6** a) Explain heat treatment of steel. **[07]**
b) Write note on surface treatment -electroplating. **[06]**
- Q.7** Define corrosion and its classification. Explain any one type in detail. **[13]**
- Q.8** Write short notes on: **[13]**
a) Crystalline and non crystalline ceramic systems
b) Glass and Porcelain enamels
c) Refractories

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