

[Time: Three Hours]

[Marks:80]

1. Question one is compulsory
2. Attempt any three from Q.2 to Q.6
3. Assume data wherever necessary
4. Figure to the right indicate full marks.
5. Use of ASME Design code sections is permissible

- Q.1 Attempt any four of the following 20
- a) State all types' vessel support with their application and neat sketch.
 - b) State the procedure for spherical shell subjected to an external pressure.
 - c) State brief reasons for loss of fluid in storage tanks.
 - d) Classify heat exchanger as per TEMA.
 - e) Draw a neat sketches of flange faces.
- Q.2 a) State all the names of ASME sections. 12
- b) Explain with reference to pressure vessels 8
- i. Type of loading
 - ii. Corrosion allowance
- Q.3 a) Draw a neat sketch agitator with system components 10
- b) State the different types of end closure of pressure vessel and Draw a neat sketch of each. 10
- Q.4 a) Draw a neat sketch of welded pressure vessel showing all the categories as per ASME code. 12
- b) Define the following 8
- i. Design pressure
 - ii. Design temperature
 - iii. Allowable stress
 - iv. Joint efficiency
- Q.5 a) Define flanges and state different types of flanges with a neat sketch and different types of flange face. 10
- b) Write a note on types of support used in pressure vessel. 10

Q.6 Attempt any four

- a) Basic design consideration in process equipment design
- b) Power requirements for agitation
- c) Explain tube sheet in relation with heat exchanger.
- d) Describe procedure of rectangular tank.
- e) Define gasket and state ideal properties of gasket.
