

GUJARAT TECHNOLOGICAL UNIVERSITY**DIPLOMA ENGINEERING – SEMESTER – 4(OLD) • EXAMINATION – SUMMER 2018****Subject Code: 345505****Date: 07-May-2018****Subject Name: Fabrication Technology - II****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Each question carry equal marks (14 marks)

- Q.1** (a) Define the term “Pressure Vessel” & list any four function of pressure vessel. **07**
 (b) XYZ industrial shell fabrication having following data/information **07**

Sr. No	Description	Sym	unit	Dimension
1	Outside dia. of shell	Do	mm	2200
2	Thickness of shell	t	mm	15
3	Height (length) of shell	H	mm	3000
Calculate & find out:				
1	Inside Dia. of shell	Di	mm	?
2	Mean Dia. of shell	Dm	mm	?
3	Development Length of shell plate	L	mm	?
4	Shell Plate diagonal length.	Ld	mm	?
5	Inside Volume of shell	Vi	M ³	?

- Q.2** (a) Write manufacturing sequence for “Pressure Vessel” **07**
 (b) Describe “Material test certificate” with detail **07**

OR

- (b) Write full name/abbreviation of the below Codes/Standards (any seven) **07**
 (1) ASME SEC-II Part-A (2) ASME SEC-V (3) ASME SEC-VIII
 (4) ASME SEC-IX (5) ASME SEC-II Part-B, (6) ASME SEC-I.
 (7) Full form of “TEMA” (8) Full form of “ASTM”

- Q.3** (a) Write function of (i) Run in Plate (ii) Run out plate (iii) Production test coupon and show its position in long seam setup with neat sketch. **07**
 (b) Classify support used for process equipment & Describe saddle support with neat sketch. **07**

OR

- Q.3** (a) Describe the typical limpet coil marking sketch with the help of given data: **14**

Sr. No.	Description	Sym	Dim. In mm
1	Shell O.D/ OD of vessel	Do	800
2	Pitch of limpet coil	P	80
3	Dia. of limpet coil	dc	60
4	Angle of orientation, Inlet nozzle Outlet nozzle (approx)	Ni No	45° 135°
5	Length of shell from T.L. to T.L.	L	1200
6	Distance from Top tan line Inlet nozzle and Outlet nozzle (approx)	L1 L2	50 1100

- Q.4** (a) Prepare a drawing for Dish end template from the following data and calculate required blank dia. **07**

Sr.No.	Description	Sym	Unit	Dimension/Data
1	Inside diameter	Di	mm	1600
2	Crown Radius	Cr	mm	1300
3	Inside depth/height	Hi	mm	500
4	D'end thickness	t	mm	15
5	Straight face length	S.F.	mm	60
6	Knuckle radius	Kr	mm	280
7	Blank Dia.	BD	mm	?

- (b) Define “Nozzle” and draw below listed nozzles. **07**
1. Angular nozzle
 2. Radial nozzle
 3. Tangential nozzle
 4. Offset nozzle
 5. Set on nozzle

OR

- Q.4** (a) Describe function of baffle, impingement plate, Tie rod & spacer with neat sketch. **07**

- Q.4** (b) Find out arc length for nozzle N1 AND N2 having following dimension with neat sketch. **07**

Outside dia. Of shell (OD) = 220 mm

1) Orientation of N1 Nozzle (θ_1) = 135°

2) Orientation of N2 Nozzle (θ_2) = 225°

- Q.5** (a) List various internals and externals used in process equipment. **07**

- (b) During manufacturing of shell in PMS fabrication industries the following observation of shell diameter at various orientations are found. **07**

Sr.No.	Description	Sym	Dimn. In mm
1	Dia. At 30°	D_1	4000
2	Dia. At 60°	D_2	4002
3	Dia. At 90°	D_3	3994
4	Dia. At 120°	D_4	3998
5	Dia. At 150°	D_5	4010
6	Dia. At 180°	D_6	4008
7	Thickness of shell	t	20

Find out ,

1. Nominal dia. Of shell plate = D nom

2. Ovality & % of ovality.

3. Comment for long seam set up whether is it permissible or not as per code?

4. To remove/prevent the ovality Suggest your measures / remedies

OR

- Q.5** (a) Define the term dish end, classify dish ends and draw hemispherical type dish end. **07**

- (b) Write function of spider with neat sketch. **07**
