

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma FAB. TECH. Examination - Summer - 15

Subject code : 3345505

DATE : 15 /05 /2015

Subject Name : FAB. TECH-II

Total Marks : 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is Authentic.
5. Write your seat no. and enrolment no. in the above given space.
6. Answer with neat sketch and to the point.

Q.1 (a) Draw a neat sketch , label its elements and state its functions : Electrical Auto Clave **07**

(b) Find out chord length and radial distance by mathematically and compare with drawing dimension (i.e. distances between two consecutive holes) of Flange having following information / data. Find out weight of flange. High light all flange marking procedure construction lines on the drawing. **07**

Sr no	Description	Sym	Dim in mm
1)	O.D. of flange	D_o	200
2)	P.C.D. of flange	D_{pcd}	160
3)	Inside dia of flange	D_i	100
4)	No. of bolts holes	N	8
5)	Dia of bolts holes	d_b	20
6)	Thickness of flange	T	25
7)	Sp. Weight of flange	δ	7.85 gms/cm ³

Q.2

- (a) Define the term ‘ Heat Exchanger ‘ , State its’ function & mode of heat transfer , Classify it on various basis / criteria **07**
- (b) Described in brief : Manufacturing sequence of Shell Of process equipment (P/E). **07**

OR

Cont-2

- Q.2** (b) During the manufacturing of shell in GMR fabrication industries the observation of shell dia. At various orientations are found as follow: **07**

Sr no.	Description	Sym	Dim in mm
1)	Diameter at $\alpha=30^\circ$	d1	3002
2)	Diameter at $\alpha=60^\circ$	d2	3004
3)	Diameter at $\alpha=90^\circ$	d3	2990
4)	Diameter at $\alpha=120^\circ$	d4	2998
5)	Diameter at $\alpha=150^\circ$	d5	3012
6)	Diameter at $\alpha=180^\circ$	d6	3010
7	Thickness of shell	t	40

1. Calculate Nominal dia. Of shell plate = D nom
2. Calculate the % of ovality.
3. Comment for long seam (L / seam) set up weather is it permissible or not as per code ?
4. To remove/prevent the Ovality Suggest your measures / Remedies

- Q.3** (a) Described in brief with neat sketch :- Nozzle orientation making **07**

- (b) Calculate blank dia. Also prepare a template drawing gauge it form given Toro-spherical D/End data :- **07**

Sr no.	Descriptions OF element of d/end	Dimension Required	
1.	Out/Side Diameter Do	1400	mm
2.	I/S Diameter	?	mm
3.	Crown radius Cr	1260	cm
4	Inside Depth h	390	mm
5	D/end thickness t	10	cm
6	Straight face SF	38	cm
7	Knuckle radius Kr	238	mm
	Also Calculate the C.G. of above D/end	?	

- Q.3** (a) Classify the Vessel support in chart form : **07**
Described in brief skirt supports with neat sketch

- (b) Described in brief : MTC with typical example and State use of it. **07**

Cont-3

Q.4

- (a) List out the various types of codes & std. with their abbreviations. **07**
Described in brief : ASME codes
- (b) Described in brief : Manufacturing sequence of process equipment (P/E) in chart form. **07**

OR

- Q.4** (a) List out the name of third party inspection agencies with their abbreviation. Explain its' function/ area of service in Fabrication industries. **07**
- (b) Described in brief with neat sketch tube bundle elements **07**

Q.5

- (a) Described in brief with neat sketch **07**
1) Lifting lug 2) Bubble tube /sprit level
3) Turn buckle 4) hydraulic jack
- (b) From the given shell raw material data of TCS ind. **07**
Calculate remaining given blank cells in table.

Sr. no.	Description	Sym	Dim in mm
1)	Length of shell plate	L	7500
2)	width(length) of shell	H	1500
3)	Thickness of shell plate	T	20
4)	Sp. Weight of flange	δ gm/cm ³	7.85
5)	Rate of finished material.	Rs. / kg	120
*	Calculate:-		
1)	Plate diagonal length	L_d	
2)	Max. outside & inside dia. of shell Mean dia of shell to be made.	D_o D_i D_{mean}	
3)	Weight of shell plate	W_s	
4)	TOTAL Cost of shell plate	C_s	
5)	Inside volume of shell	V_i	

OR

Cont-4

OR

Q.5 (a) Described the typical limpet coil marking with the help of following data :

07

Sr no.	Description	Sy m	Dim in mm /deg.
1)	Shell OD/ O.D. of vessel	D_o	1000
2)	Pitch of Limpet coil	P	120
3)	Dia of limpet coil	d_c	40
4)	Angle of orientation Inlet nozzle and Outlet nozzle (approx)	N_i N_o	30 ° 300 °
5)	Length of shell from T.L. TOT.L.	L	1800
6)	Distance from top tan line Inlet nozzle and Outlet nozzle (approx)	L_1 L_2	100 1500

(b) Describe the steps followed for the SHELL to NOZZLE fit-up and set-up with neat sketch
