

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING SEMESTER – IV • EXAMINATION SUMMER 2015

Subject Code: 345505

Date: 15-05-2015

Subject Name: FAB. TECH-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. 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 : 07
1) Reaction vessels

(b) Find out chord length and radial distance by mathematically and compare 07
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.

Sr no	Description	Sym	Dim in mm
1)	O.D. of flange	Do	1200
2)	P.C.D. of flange	Dpcd	1000
3)	Inside dia of flange	Di	600
4)	No. of bolts holes	N	24
5)	Dia of bolts holes	d _b	40
6)	Thickness of flange	T	20
7)	Sp. Weight of flange	δ	7.85 gm/cm ³

Q.2 (a) Explain in brief : MTC with typical example and State use of Material test 07
certificate

Cont-2

- (b) During manufacturing of shell in DMR fabrication industries the observation of shell dia. At various orientations are found as follow:

Sr no.	Description	Sym	Dim in mm
1)	Diameter at $\alpha=30^\circ$	d1	4004
2)	Diameter at $\alpha=60^\circ$	d2	4000
3)	Diameter at $\alpha=90^\circ$	d3	3992
4)	Diameter at $\alpha=120^\circ$	d4	3996
5)	Diameter at $\alpha=150^\circ$	d5	4014
6)	Diameter at $\alpha=180^\circ$	d6	4012
7	Thickness of shell	t	20

Find out ,

Nominal dia. Of shell plate = D nom

1. ovality & % of ovality.
- 2 Comment for long seam (L / seam) set up weather is it permissible or not as per code ?
- 3 To remove/prevent the ovality Suggest your measures / remedies

OR

- (b) Define the term Heat Exchanger & state its function , Classifies H.E. on various basis / criteria ? 07

Q.3

- (a) Explain in brief : Manufacturing sequence of process equipment (P/E) Shell. 07
- (b) Calculate blank dia. prepare a drawing for template gauge Toro-spherical D/End for following data also calculate :- 07

Sr no.	Descriptions OF element of d/end	Dimension Required	
1.	Out/Side Diameter Do	600	mm
	I/S Diameter	-	mm
2.	Crown radius Cr	540	cm
3	Knuckle radius Kr	102	mm
4	Inside Depth h	200	mm
5	Straight face SF	50	cm
6	D/end thickness t	1	cm
	Also Calculate the C.G. of above D/end	?	

- Q.3 (a) Described in brief : ASME codes 07

- (b) Described in brief with neat sketch :- Nozzle SCHEDULE 07

Cont-3

Q.4

- (a) Classify the Vessel support in chart form : Explain their selection criteria **07**
- (b) Explain in brief with neat sketch
- 1) Lifting lug 2) Buble tube /sprit level
3) Turn buckle 4) hydraulic jack 5) L cleats **07**

OR

- Q.4** (a) Describe the steps followed for the SHELL to D/END fit-up and set-up with neat sketch **07**
- (b) Explain in brief with neat sketch **07**
1. PTC ,RUN –IN & RUN –OUT PLATE
2. R.F. Pad & T.T. HOLES of P/V nozzle.
3. lifting lug

Q.5

- (a) Described in brief : Manufacturing sequence of process equipment (P/E) in chart form. **07**
- (b) From the given shell raw material data of PQR ind. Calculate remaining given blank cells in table. **07**

Sr. no.	Description	Sym	Dim in mm
1)	Length of shell plate	L	5000
2)	width(length) of shell	H	1000
3)	Thickness of shell plate	T	10
4)	Sp. Weight of flange	δ	7.85
5)	Rate of finished material.	Rs. / kg	160
*	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	Cs	

Cont-4

OR

Q.5 (a) Explain the typical limpet coil marking with the help of following data **07**

:

Sr no.	Description	Sym	Dim in mm / deg.
1)	Shell OD/ O.D. of vessel	Do	1000
2)	Pitch of Limpet coil	P	120
3)	Dia of limpet coil	dc	20
4)	Angle of orientation Inlet nozzle and Outlet nozzle (approx)	Ni No	120 ° 60 °
5)	Length of shell from T.L. TO T.L.	L	1500
6)	Distance from top tan line Inlet nozzle and Outlet nozzle (approx)	L1 L2	100 1300

(b) Describe in brief with neat sketch : - tank rotator

07
