

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering Sem. - IV - Examination – June- 2011

Subject code: 345505

Subject Name: Fabrication Technology –II

Date:10/06/2011

Time: 02:30 pm – 05:00 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. Assume suitable data if necessary

- Q.1** (a) Draw a neat sketch, label its elements and state its functions: **07**
Shell and tube type H.E.
- (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 and Total cost of flange.

Sr no.	Description	Sym	Dim in mm
1)	O.D. of flange	Do	500
2)	P.C.D. of flange	Dpcd	400
3)	Inside dia of flange	Di	200
4)	No. of bolts holes	N	12
5)	Dia of bolts holes	d _b	16
6)	Thickness of flange	T	16
7)	Sp. Weight of flange	δ gm/cm ³	7.85
8)	Rate of finished material.	Rs/kg	80

- Q.2** (a) Define the term Heat Exchanger state its function , classify H/E on **07**
various basis/criteria.
- (b) State the meaning of ASME and give brief description about ASME code. **07**
- OR**
- (b) From the given shell raw material data , calculate data for remaining **07**
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Sr. no.	Description	Sym	Dim in mm
1)	Length of shell plate	L	2250
2)	Height(length) of shell plate	H	250
3)	Thickness of shell plate	T	10
4)	Sp. Weight of flange	δ gm/cm ³	7.85
5)	Rate of finished material.	Rs/kg	80
*	Calculate:-		
1)	Plate diagonal length	L _d	
2)	Max. outside & inside dia. of shell Mean dia of shell to be fabricated.	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	

- Q.3** (a) Explain in brief : MTC with typical example and State use of Material test certificate. **07**
 (b) Calculate approximate moon-plate length with the help of following data **07**

Sr no.	Description	Sym	Dim in mm
1)	Out side diameter of shell	Do	5020
2)	Thickness of shell plate	t	10
3)	Moon plate ⊥ distance from in side edge to C-L of shell	l	320
4)	Thickness of moon plate	Tm	20
5)	Width of moon plate	Tw	50
Calculate:-			
1)	Maximum length of moon plate	Lm	
2)	Inside volume of shell Asume blind d'end at both end	Vi	
3)	Inside dia.	Di	

OR

- Q.3** (a) Steps for rolling of a shell plate on three roller pyramid type bending M/CS. **07**
 (b) Define the term flange and state its functions. Classify the various types of flanges. **07**

- Q.4** (a) Instruction for communication of between crane operator and slingers on shop floors. **07**
 (b) Explain the following terms in brief with neat sketch (ANY THREE) **07**
 1. Production Test Coupon (PTC) 2. Lifting Lug
 3. Elevation in P/V, H/E drawing. 4. Turn buckle

OR

- Q. 4** (a) During manufacturing of shell in xyz fabrication industries the observation of shell dia. At various orientations are found as follow: **07**

Sr no.	Description	Sym	
1)	Diameter at $\alpha=30^\circ$	d_1	3600
2)	Diameter at $\alpha=60^\circ$	d_2	3605
3)	Diameter at $\alpha=90^\circ$	d_3	3612
4)	Diameter at $\alpha=120^\circ$	d_4	3608
5)	Diameter at $\alpha=150^\circ$	d_5	3606
6)	Diameter at $\alpha=180^\circ$	d_6	3598
7)	Thickness of shell	t	20

Find out,

- Nominal dia. Of shell plate = D nom
 - Ovality and % of ovality.
 - Comment for long seam (L/seam) set up weather it is permissible or not as per code.
 - To remove/prevent the ovality Suggest your measures / remedies
- (b) Prepare a typical inspection report for D/End with neat sketch **07**

- Q.5** (a) Explain in brief : Any one mechanical cutting process with neat sketch. **07**
 (b) Explain in brief: Environmental Occupational Health Safety Policy. **07**

OR

- Q.5** (a) Classify the support and explain any one/ of them with neat sketch. **07**
 (b) Explain 'Fabrication tolerance' with suitable typical fabrication job/ example **07**
