GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering Semester –IV Examination Dec. - 2011

Subject code: 345505   **Date: 12/12/2011**
Subject Name: Fabrication Technology-II
Time: 10.30 am – 1.00 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 considered Authentic.**

Q.1 (a) Draw a neat sketch, label its elements and state its functions: **07**
Tube sheet bundle

(b) Prepare a typical inspection report for D/End with neat sketch **07**

Q.2

(a) Define the term Heat Exchanger state its function, classify p/v on **07**
various basis/criteria.

(b) Example From the given shell raw material data calculate remaining **07**
blank cells

Sr. no.	Description	Sym	Dim in mm
1)	Length of shell plate	L	5000
2)	Height(length) of shell plate	H	2500
3)	Thickness of shell plate	T	8
4)	Sp. Weight of flange	δ gm/cm³	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	Ws	
4)	TOTAL Cost of shell plate	Cs	
5)	Inside volume of shell	V_i	

OR

(b) Explain in brief the typical name plate in detail for P.V, P.E.,H.E. **07**
[Chart form]

Q.3

(a) Draw a neat sketch of three alignment tools/equipment used in **07**
fabrication shop with their typical use

(b) During manufacturing of shell in   xyz fabrication industries the **07**
observation of shell dia.   At various orientations are found as

follow:

Sr no.	Description		
1)	Diameter at α=30°	d_1	4000
2)	Diameter at α=60°	d_2	4005
3)	Diameter at α=90°	d_3	4012
4)	Diameter at α=120°	d_4	4008
5)	Diameter at α=150°	d_5	4006
6)	Diameter at α=180°	d_6	3998
7)	Thickness of shell	t	10

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

OR

Q.3 **(a)** Explain in brief : MTC with typical example and State use of Material test certificate. **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. **07**
1) Find out weight and total cost of flange.

Sr no.	Description	Sym	Dim in mm
1)	O.D. of flange	Do	600
2)	P.C.D. of flange	Dpcd	460
3)	Inside dia of flange	Di	100
4)	No. of bolts holes	N	12
5)	Dia of bolts holes	d_b	20
6)	Thickness of flange	T	20
7)	Sp. Weight of flange	δ gm/cm³	7.85
8)	Rate of finished material.	Rs/kg	120

Q.4

(a) Explain the roll of third party inspection agencies in fabrication industry. **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	5000
2)	Thickness of shell plate	t	16

3)	Moon plate ⊥ distance from in side edge to C-L of shell	l	250
4)	Thickness of moon plate	Tm	10
5)	Width of moon plate	Tw	30
	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. 4 (a) Describe the steps followed for the following fit-up and set-up with neat sketch Long seam (L/S) of shell **07**

(b) Instruction for communication of between crane operator and slingers on shop floors. **07**

Q.5

(a) Compare Plasma cutting and Fuel Gas cutting. **07**

(b) Calculate blank dia. Toro-spherical D/End prepare a drawing for template gauge Toro-spherical D/End **07**

Sr. no.	Description / equation	Sym	Diamention
(1)	Inside Dia	D_i	120
(2)	Outside Dia	D_o	--
(3)	Crown radius	C_r	105
(4)	Knuckle radius	K_r	30
(5)	Height inside	H_i	40
(6)	Straight face	S_f	5
(7)	Thickness	t	10

OR

Q.5 (a) Explain in brief with typical Nozzle schedule table. State the function of nozzle.(P/E drawing) **07**

(b) Explain in brief positioners and tank rotator. **07**

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