Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGG.- IVth SEMESTER–EXAMINATION – JUNE- 2012

Subject code: 345505 **Date: 21/06/2012**

Subject Name: Fabrication Tech.-II

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 considered to be Authentic**

Q.1 (a) Explain three methods of heat transfer. **07**
Draw shell & tube type heat exchanger and label its parts

(b) Explain MTC with typical example and State use of Material test certificate. **07**

Q.2

(a) Codes and Standard: **07**
i) List the various types of codes & std. with their abbreviations.
ii) State their application in Fab. Industries.
iii) State advantages and limitations of their.

(b) Draw a neat sketch of five marking tools /equipment used in fabrication. **07**

OR

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

Sr no.	Description	Sym	Dim in mm
1)	Diameter at $\alpha=30^o$	d_1	2500
2)	Diameter at $\alpha=60^o$	d_2	2504
3)	Diameter at $\alpha=90^o$	d_3	2496
4)	Diameter at $\alpha=120^o$	d_4	2499
5)	Diameter at $\alpha=150^o$	d_5	2502
6)	Diameter at $\alpha=180^o$	d_6	2508
7)	Thickness of shell	t	12

Find out,
i) Nominal dia. Of shell plate = D nom
ii) % of ovality.

a) Comment for long seam (L/seam) set up weather it is permissible or not as per code.
b) To remove /prevent the ovality Suggest your measures / remedies

Q.3

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

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

Sr. no.	Description	Sym	Dim in mm
1)	Length of shell plate	L	1150
2)	Height(length) of shell plate	H	350
3)	Thickness of shell plate	T	10
4)	Sp. Weight of material	δ gm/cm³	7.85

5)	Rate of finished material.	Rs/kg	100
*	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

Q.3 (a) Enumerate Non Destructive test methods and explain any one method neat sketch. **07**

(b) Explain in brief with neat sketch : Air-plasma arc cutting. **07**

Q.4

(a) Describe the steps followed for the Shell to nozzle fit-up and set-up with neat sketch **07**

(b) Explain in brief with neat sketch : **07**

1) Press break
2) Hydraulic press.

OR

Q. 4 (a) Explain Steps for rolling of a shell plate on cylindrical type three roller banding M /C. **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.
2) Write in brief flange marking procedure with high light all construction lines on the drawing.

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	16
5)	Dia of bolts holes	d_b	20
6)	Thickness of flange	T	16
7)	Sp. Weight of flange	δ gm/cm³	7.85
8)	Rate of finished material.	Rs/kg	120

Q.5

(a) Safety in arc welding/gauging and cutting in yard **07**

(b) Calculate blank diameter, inside volume and weight of hemispherical D /end having Outside Radius = 100 mm, thickness = 10 mm , Sp. Wt. = 7.85 gm / cm3 **07**

OR

Q.5 (a) Explain in brief tank rotator with neat sketch and state its application **07**

(b) Explain in brief with neat sketch: **07**

i) Tube sheet ii) Tie rod iii) Baffles iv) Spacers v) Tube vi) Impingement plate vii) Draw Lug

****