Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER–IV • EXAMINATION – SUMMER • 2014

Subject Code: 345505 **Date: 03-06-2014**

Subject Name: Fabrication Technology - II

Time: 10:30 am - 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: Elements of Reactor's **07**

(b) During manufacturing of shell in Manu 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 α=30o	d1	2800
2)	Diameter at α=60o	d2	2804
3)	Diameter at α=90o	d3	2796
4)	Diameter at α=120o	d4	2798
5)	Diameter at α=150o	d5	2804
6)	Diameter at α=180o	d6	2408
7	Thickness of shell	t	18

Find out,

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

Q.2 **(a)** Describe the commercial forms of metal with their BIS number and draw their neat sketch, symbol and state typical specification in detail for the purchase of commercial forms of metal. **07**

(b)
1. Define the term a P/V ? **07**
2. State the functions / application of a P/V ?
3. Classifies P/V on various basis / criteria ?

OR

(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	2016
2)	Thickness of shell plate	t	8
3)	Moon plate ⊥ distance from in side edge to C-L of shell	D_m	300
4)	Thickness of moon plate	Tm	10
5)	Width of moon plate	Wm	50

	Calculate:-		
1)	Inside dia.	Di	
2)	Inside volume of shell Assume blind D/end at both end	Vi	
3)	Maximum length of moon plate	Lm	

Q.3 **(a)** Explain in brief : Manufacturing sequence of process equipment (P/E) in chart form. **07**

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

i) Tube sheet ii) Tie rod iii) Baffles

iv) Spacers v) Tube

OR

Q.3 **(a)** List the type of dish end? Explain inspection procedure for toro spherical dish end with neat sketch **07**

(b) Describe the steps followed for the Shell to cone fit-up and set-up with neat sketch. **07**

Q.4 **(a)** 1. Define the term template? **07**

2. Classify the template based on various criteria and explain them in brief?
3. Explain in brief the tolerance given in typical fabrication vessels with neat sketch

(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	5000
2)	Height (length) of shell	H	2500
3)	Thickness of shell plate	T	20
4)	Sp. Weight of flange	δ gm/cm³	7.85
5)	Rate of finished material.	Rs/kg	80
*	Calculate:-		
1)	Plate diagonal length	Ld	
2)	Max. outside & inside dia. of shell Mean dia of shell to be fabricated.	Do Di, Dmean	
3)	Weight of shell plate	Ws	
4)	TOTAL Cost of shell plate	Cs	
5)	Inside volume of shell	Vi	

OR

Q.4 **(a)** 1. Define the term 'Nozzle'? 07

2. Classify the nozzle on various bases/criteria.
3. Explain in brief with neat sketch :-
   Air Carbon arc electrode gauging.

(b) Explain in brief with neat sketch 07

1) PTC 2) R.F. Pad of P/V. 3) turn buckle

4) lifting lug 5) hydraulic jack

Q.5 **(a)** Classify mech. Metal cutting process . 07

Explain any one mech. cutting process with neat sketch.

(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

Find out weight and total cost of flange.
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	800
2)	P.C.D. of flange	Dpcd	650
3)	Inside dia of flange	Di	500
4)	No. of bolts holes	N	16
5)	Dia of bolts holes	d_b	25
6)	Thickness of flange	T	20
7)	Sp. Weight of flange	δ	7.85 gm/cm³
8)	Rate of finishe Material.	Rs/kg	85

OR

Q.5 **(a)** Explain in brief with neat sketch : - Trimming line and orientation marking procedures for shell. 07

(b) Explain in brief with neat sketch of defect may be seen during forming of shell 07

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