

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENG. – SEM – IV • EXAMINATION – SUMMER- 2017

Subject Code : 33 4 55 05

Date :05-05-2017

Subject Name : FAB TECH – II

Total Marks : 70

Time:10:30 AM TO 1:00 PM

Instructions :

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Draw a neat sketch whenever necessary
6. Write your seat no. and enrolment no. in the above given space on Q. PAPER

Q.1 (a) Draw a neat sketch ‘ Cylindrical Shell Spider ‘ ? 07
State its’ functions & label its’ elements ?

(b) Find out chord length and radial distance by mathematically and compare with 07
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	D_o	800
2)	P.C.D. of flange	D_{pcd}	600
3)	Inside dia. of flange	D_i	400
4)	No. of bolts holes	N	12
5)	Dia. of bolts holes	d_b	20
6)	Thickness of flange	T	10
7)	Sp. Weight of flange	δ	7.85 gms/cm ³

Q.2 (a) 1) Define the term a Heat Exchanger ? 07
2) State the mode of H.E. ?
3) List out the miscellaneous Fabrication Aids ?

(b) Describe the steps followed for the Cir. Seam (C/S) shell to D/ End 07
fit-up and set-up with neat sketch.

OR

- Q.2 (b) 1) Calculate D/End blank dia. & the C.G. of D/end 07
2) Prepare a drawing for Toro-spherical D/End template gauge based on following data :-

Sr no.	Descriptions OF element of d/end	SYM	Dimension Required	UNITS
1.	I/S Diameter	Di	240	mm
2.	Crown radius	Cr	210	mm
3.	Inside height / Depth	h	75	mm
4	D/end thickness	t	0.8	cm
5	Straight face	SF	1	cm
6	Knuckle radius	Kr	65	mm

- Q.3 (b) Describe the following terms in brief with neat sketch :
1) PTC , Run-in and run-out plate 2) R.F. PAD & T T HOLE

- (b) From the given shell raw material data of KBC ind. 07
Calculate remaining given blank cells in table.

Sr.no.	Description	Sym	Dim in mm
1)	Length of shell plate	L	9420
2)	width(length) of shell	H	1000
3)	Thickness of shell plate	T	10
4)	Sp. Weight of plate	δ	7.85 gm/cm ³
5)	Rate of finished material.	R	80 Rs. / kg
*	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	C _s	
5)	Inside volume of shell	V _i	

OR

- Q.3 (a) Described the ASME various SECTION with sub section of 1 to 12 . 07
State the meaning of ASME, TEMA , ASTM & JIS.

- (b) List out the various types fabrication aid use for fabrication work . 07
Described in brief with neat sketch : - Tank Rotator

- Q.4 (a) Describe in brief with neat sketch :- Types Of Baffels Of H. E 07
- (b) During manufacturing of shell in PMS 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 $\alpha = 30^\circ$	d1	2000
2)	Diameter at $\alpha = 60^\circ$	d2	2004
3)	Diameter at $\alpha = 90^\circ$	d3	1994
4)	Diameter at $\alpha = 120^\circ$	d4	1998
5)	Diameter at $\alpha = 150^\circ$	d5	2012
6)	Diameter at $\alpha = 180^\circ$	d6	2008
7	Thickness of shell	t	16

Find out , Nominal dia. Of shell plate = D_{nom} ,
Ovality & % of ovality. Comment for long seam (L/seam) set up weather Is it is permissible or not as per code ?

OR

- Q.4 (a) Described in brief with neat sketch 07
1) Lifting lug 2) Bubble tube /sprit level 3) hydraulic jack
- (b) Define the term “nozzle ” ? Classify the nozzle on various bases ? 07
Draw neat sketches VARIOS TYPES of nozzle fit-up & set-up ?

Q.5

- (a) Described in brief with neat sketch manufacturing of cylindrical shell on pyramid type Three Roller plate Bending machine. 07
- (b) Define the term “Support” ? Classify the different types of supports , 07
State its’ selection criteria ?

OR

- Q.5 (a) General Steps followed for fabrication of P / E.? 07
- (b) Describe the typical limpet coil marking sketch with the help of given data : 07
State the function / application of limpet coil & Classify the limpet coil.

Sr no.	Description	Sym	Dim in mm / deg.
1)	Shell OD/ O.D. of vessel	D_o	800
2)	Pitch of Limpet coil	P	200
3)	Dia. of limpet coil	d_c	30
4)	Angle of orientation Inlet nozzle and Outlet nozzle (approx)	N_i N_o	30° 330°
5)	Length of shell from T.L. TO T.L.	L	2400
6)	Distance from Top Tan line Inlet nozzle and Outlet nozzle (Approx.)	L_1 L_2	200 1800