Seat No Elifolitett No.	Seat No.:	Enrolment No.
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VI • EXAMINATION - SUMMER 2015

Su	bject	Code: 162301 Date: 01/05/201	15
Su	bject	Name: Plastic Extrusion Technologies	
		e: 10.30am-01.00pm Total Mark	
Ins		Attempt all questions. Make suitable assumptions wherever necessary.	
Q.1	(a) (b)	Differentiate between Single and Twin Screw Extruder. With a neat line diagram, discuss the manufacture of LDPE blown films.	07 07
Q.2	(a) (b)	Discuss heating systems in Screw extruders Define [any seven] : Extrusion ; Grooved barrel ; reduction gear box; L/D ratio ; Flight depth ; breaker plate ; screen pack ; Compression ratio ; helix angle OR	07 07
	(b)	Discuss selection criteria for materials used in Extrusion process	07
Q.3	(a) (b)	Discuss Grooved barrel technology. With a neat line diagram, discuss the manufacture of Monofilaments made from Nylon.	07 07
		OR	
Q.3	(a) (b)	Discuss manufacture of Raffia with a neat line diagram. Discuss manufacture of Plastic Sheets with a neat line diagram.	07 07
Q.4	(a) (b)	Discuss various screw designs for Extrusion process Fill in the blanks: 1bearings are used in the thrust bearing block of twin screw extruder machines. 2. Screw used for PVC is 3. Significance of L/D ratio is 4is the normal helix angle for extruder screws.	07 07
		5. Function of Godet is	
		6. Corotating twin screw extruder is used forapplication7. Angle of repose signifies	
		OR	
Q.4	(a) (b)	Discuss Devolatilization in Screw Extruders Discuss manufacture of Wire and Cables with a neat line diagram. 07.	
Q.5	(a)	What is Internal Bubble cooling? Discuss in detail.	07
	(b)	Discuss with a neat line diagram, the manufacture of HDPE Pipes. OR	07
Q.5	(a)	A plastic film, 0.1mm thick, is required to have its orientation in the transverse direction twice that in the machine direction. If the film blowing die has an outer diameter of 100 mm and an inner diameter of 98 mm estimate the blow up ratio which will be required and the lay flat width of the film. Ngelect Extrusion induced effects and assume there is no draw down.	

07

(b) In a particular extruder screw the channel width is 45mm , the channel depth is 2.4mm , the screw diameter is 50mm , the screw speed is 100 rev/min, the flight angle is 17 $^{\circ}$ 42 $^{\prime}$ nd the pressure varies linearly over the screw length of 1000 mm from zero to 20 MN/m2 at the die entry. Estimate (a) the drag flow (b) the pressure flow (c) the total flow.

Note: The plastic ha a viscosity of 200 Ns/m2.
