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(REVISION — 2010)

Reg. No. .....

Signature .....

THIRD SEMESTER DIPLOMA EXAMINATION IN POLYMER TECHNOLOGY— MARCH, 2015

TECHNOLOGY OF ELASTOMERS

[*Time* : 3 hours

(Maximum marks : 100)

PART—A

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Define the term 'compounding'.
2. What is delayed action accelerator ?
3. What are retarders ?
4. What is reinforcement ?
5. ML (1 + 4) 100 degree celcius is the moony viscosity unit. Specify each term.

(5×2=10)

PART—B

(Maximum marks : 30)

II Answer *any five* of the following questions. Each question carries 6 marks.

1. Prepare a recipie of Pressure cooker gasket with EV system of vulcanization.
2. Explain the theory of vulcanization.
3. Describe Antioxidants and Anti ozonents.
4. Describe the Rotocure method of continous vulcanization.
5. Classify fillers.
6. Design a compound based on Natural rubber with Soft clay as filler for 55 shore a Hardness.
7. Classify Blowing agents.

(5×6=30)

PART—C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT—I

III (a) Explain the various curing systems employed in rubber products manufacturing. 8

(b) Describe the types of accelerators used in rubber products manufacturing. 7

OR

Marks

IV (a) Describe the basic ingradients in a typical formulation. 8

(b) Describe the EV, CV and Semi EV vulcanization system and its applications. 7

UNIT—II

V (a) Compare the cure graph of Moony Viscometer and Ocillating Disc Rheometer. 7

(b) Explain the process of Transfer moulding its advantages over compression moulding. 8

OR

VI (a) Describe the principle of compression moulding with sketch of upstroke hydraulic press. 7

(b) Explain the method for assessment of state of cure. 8

UNIT—III

VII (a) Explain the principle of Fluidized bed vulcanization process. 8

(b) Describe Micro oven cure and Autoclave method. 7

OR

VIII (a) Explain the effect of Fillers particle size and structure in properties of vulcanizate. 8

(b) Describe the factors to be considered for required abrasion resistance and hardness. 7

UNIT—IV

IX (a) Describe the factors to be considered for the required resistance to hydrocarbon liquids and resistance to heat. 7

(b) Calculate the volume cost and total specific gravity of the compound by the given data.

	Phr	Sp. gravity
Natural rubber	100	.93
Zno	5	5.5
Stericacid	3	.85
Chinaclay	40	2.5
Aromaticoil	4	1.02
MBT	1.5	1.54
TMTD	.2	.21
Sulphar	3.5	2.05
Al silicate	20	2.1

8

OR

X (a) What are the factors considered for good resistance to gas and flame ? 7

(b) Describe the design consideration for, good Tear and electrical resistance. 8