

C 40428

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Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2013

(CCSS)

Chemistry — Elective Course

CH 6B 20 (E4) (C)—CHEMISTRY AND TECHNOLOGY OF POLYMERS

Time : Three Hours

Maximum : 30 Weightage

I. Answer all *twelve* questions :

- 1 Natural rubber is the *cis* isomer of _____
- 2 Urea-phenol polymers are examples of _____ plastic. (Thermo/Thermosetting)
- 3 Name the monomer used for preparing Teflon _____
- 4 Give one example of a biodegradable polymer.
- 5 Perspex is made from _____
- 6 Which is the antioxidant used during plastic processing ?
- 7 An example of a copolymer is _____
- 8 For a plastic to be soft and pliable its T_g should be _____ than room temperature (lower/greater).
- 9 The creep of rubber is also known as _____
- 10 In the blow moulding the polymer melt is formed into a _____ and then air is blown into it.
- 11 Thiokol rubber contains _____ linkage (C-C/S-S/O-O/Si-Si).
- 12 _____ is an example of a polymer fibre.

(12 x ¼ = 3 weightage)

II. Answer all *nine* questions

- 13 What is meant by co-ordination polymerisation ?
- 14 Give a short note on "Tacticity of Polymers".
- 15 Define Resilience.
- 16 What is the molecular structure of NBR polymer ?
- 17 Give a short note on thermoforming.
- 18 Why polymers are called viscoelastic ?
- 19 Give *two* examples each for monofunctional and bifunctional monomers.
- 20 What is meant by abrasion resistance of a rubber sample ?
- 21 What are silicone polymers ?

(9 x 1 = 9 weightage)

Turn over

III. Answer any *five* questions :

- 22 What is the use of carbon black and plasticizer in compounding of rubber ?
- 23 What is meant by vulcanisation ? What change occur during vulcanisation ?
- 24 What is the use of Ziegler **Natta** catalyst in polymerisation reactions ?
- 25 Discuss briefly the structure and applications of **Chloroprene** Rubber (CR).
- 26 Compare the polymers **LDPE** and **HDPE**.
- 27 Describe briefly on compression moulding.
- 28 What are fibres ? Give *two* examples each for a **natural fibre** and synthetic fibre.

(5 x 2 = 10 **weightage**)

IV. Answer any *two* questions :

- 29 (a) What do you mean by number average molecular weight and weight average molecular weight ?
(b) Define **Polydispersity** Index. What does it signify ?
- 30 Describe briefly about the physical and mechanical properties of polymers.
- 31 What is meant by step growth and chain growth polymerisation ? Give *one* example for each. Give a short account of ring opening polymerisation.

(2 x 4 = 8 **weightage**)