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SEAT No. _____

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SARDAR PATEL UNIVERSITY
M.Sc. Polymer Science & Technology Semester-II Examination – 2019
Saturday, 23th March 2019
10:00 a.m. to 1:00 p.m.
PS02CPST23: Polymer Additives

Note: (1) Attempt all questions.

Total marks: 70

(2) Figures to the right indicate full marks.

Que. 1 Answer the following

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- (1) Viscosity of _____ fluid varies with shear rates at a constant temperature and pressure.
(a) Newtonian (b) Non newtonian (c) Thixotropic (c) None of these
- (2) melamine are used as _____
(a) Stabilizer (b) Flame retardant (c) Lubricant (d) None of these
- (3) _____ are used as a thixotropic agent for polyester resin
(a) Zinc oxide (b) Bentonite Clay (c) both a & b (d) None of these
- (4) The function of _____ in plastics is to produce cellular material
(a) Toughening agent (b) blowing agent (c) anti ageing additive (d) none of these
- (5) _____ is a peroxide decomposer
(a) Dibutyl tin maleates (b) Stearic acid (c) Dilauryl thiodipropionate (d) None of these
- (6) _____ absorb the energy generated by impact and dissipate it in nondestructive fashion
(a) Toughening agent (b) Adhesion promoter (c) Anti ageing additive (d) None of these
- (7) In the thermal degradation, oxidation reaction may be accelerated by presence of _____
(a) Hydroperoxide (b) Heavy metal ion (c) Initiator (d) All of these
- (8) Minimum voltage which causes a permanent loss of dielectric properties under specified conditions is known as _____
(a) Dielectric strength (b) Antistatic (c) Flame Retardant (d) None of these

Que. 2 Answer the following (any seven)

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- (1) Write the requirement of stabilizer for halogenated polymer
- (2) Define bleeding & blooming
- (3) Discuss unavoidable side effect of additive
- (4) Explain the different factor on which lubricant effectiveness depend?
- (5) Explain adhesion promoter
- (6) Write the normal rule for the selection of lubricants
- (7) Write the resonance stabilization in primary antioxidant
- (8) Explain the different factor on which lubricant effectiveness depend?
- (9) Explain chelating agent as metal deactivator

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- Que. 3** (a) Explain the special stabilizer for halogenated polymer 06
- (b) Write the mechanism for polymer degradation. Explain the role of primary and secondary stabilizer 06
- OR**
- (b) **Answer the following** 06
1. Define additive and write the classification of additive according to their specific function.
 2. Discuss the synergistic stabilizer system
- Que. 4** (a) Discuss the external lubricants 06
- (b) **Answer the following** 06
1. Discuss the method of incorporation of additives into polymer matrix
 2. Explain solid lubricant
- OR**
- (b) **Answer the following** 06
1. Explain the Antiblock additives
 2. Explain the compatibility and mobility of additives
- Que. 5** (a) Discuss the additive used in expansion process 06
- (b) Discuss the burning mechanism of plastics and Explain flame retardant agents 06
- OR**
- (b) **Answer the following** 06
1. Give a brief account on filler
 2. Write a note on antistatic agents
- Que. 6** (a) Write a note on plasticizer 06
- (b) Explain the mechanism of natural radiation on ageing of plastics and Explain the role of carbon black, pigment as UV absorbers 06
- OR**
- (b) **Answer the following** 06
1. Explain Toughening agent
 2. Explain thixotropic agents

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(2)