**KLS Gogte Institute of Technology (Autonomous)**

**Department of Chemistry**

Subject: Applied Chemistry Code:18CHE12

Internal Assessment Test - III

Semester: I Div: H, I, J, K, L, M and N Date: 17/11/2018

Max. Marks: 25 Duration: 1 Hr **Instructions**: **Answer any five questions. (5 x 5 = 25 marks)**

1. Give the synthesis and applications of PMMA and polycarbonate polymers. [L2,CLO4, PO 1,12]
2. A sample of polymer contains 10, 25, 30 and 35 % of molecules of the polymer with molecular weights 12000, 13500, 15000 and 18000. Calculate the number average and weight average molecular weight of the polymer. [L3, CLO4, PO 1, 5
3. What are polymer composites? Give the synthesis and applications of Carbon fiber. [L2 CLO4, PO1, 3]
4. Define glass transition temperature. Explain following factors affecting Tg with an example

i. Intermolecular forces ii. Flexibility [L2 CLO4, PO 1, 3]

1. 25 ml of sewage sample was diluted to 600 ml and equal volumes were filled in two BOD bottles. DO in one bottle was determined immediately and 250 ml of solution required 6.0 ml of 0.023N Na2S2O3. The second sample was incubated for five days and in DO determination, 250 ml solution required 3.2 ml of 0.023N Na2S2O3. Calculate the BOD of the sample. [L3 CLO5, PO 1, 3]
2. Why COD is greater than BOD? 20 ml of sewage water was mixed with 25 ml of K2Cr2O7, acidified and refluxed. The unused K2Cr2O7 required 12.0 ml 0.2 N FAS. In a blank titration 25 ml of K2Cr2O7 required 17.5 ml of 0.2 N FAS. Calculate COD of sample. [L3 CLO5, PO 1,3,]
3. Explain instrumentation and applications of Flame photometry. [L2 CLO3, PO 1,12]

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**Department of Chemistry**

**Subject: Applied Chemistry Quiz III Code: 18CHE12**

**Semester: I Div:** H, I, J, K, L, M and N  **Date: 17/11/2018**

**10 Questions of 1 mark each. Max. Marks: 10 Duration: 15 minutes**

1. As the molecular weight of a polymer increases

a) Tg Increases b) Tg decreases c) No change in Tg d) None

1. The polymer which conduct electricity in presence of light is called

a) Conducting b) Photoconducting c) Thermal conducting d) None

1. The monomers used in the manufacture of epoxy resin are

a) Epichlorohydrin & bis-phenol-A b) Disocyanate & glycol c) bis-phenol-A & phosgene d) None

1. Light source used in UV-vis. spectroscopy is

a) Tungsten b) Xenon c) Nernst glower d) Both a and b

1. Which of the following is a synthetic elastomer?

a) Silicone rubber b) Glue c) Casein d) Teflon

1. Which of the following is the requirement for exhibiting conductivity in polymer?

a) Linear structure b) Presence of oxidizing or reducing agent as dopant

c) Alternative single and double bonds d) All the above

1. COD value includes

a) Total Organic matter b) Total Organic and Inorganic matter c) biodegradable organic matter d) Both a and b

1. Below its glass transition temperature, a polymer is

a) Hard and brittle b) Soft and rubbery c) Viscofluid d) Soft

1. If the degree of polymerization of PVC is 150 what is the molecular weight of PVC,

a) 9450 b) 9554 c) 9375 d) None of these

1. IR spectroscopy is based on

a) Emission b) Absorption c) Spin changes d) Vibration changes

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**Department of Chemistry**

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**KLS Gogte Institute of Technology (Autonomous)**

**Department of Chemistry**

Subject : Engineering Chemistry Code :15CHE12

Internal Assessment Test - III

Semester : I Div : H,I,J,K,L,M & N Date : 07/11/2015

Max. Marks : 25 Duration: 1 Hr **Instructions** : **Answer any five questions. (5 x 5 = 25 marks)**

1. What are elastomers? Give the synthesis and applications of silicone rubber. [L2], a
2. What are conducting polymers? Explain the mechanism of conduction in Polyacetylene. [L2], a
3. Give the synthesis and applications of Kevlar and Carbon fiber. [L2], a
4. Define adhesive. Explain any four mechanisms of adhesion. [L2], a
5. 30 ml of sewage sample was diluted to 700 ml and equal volumes were filled in two BOD bottles. DO in one bottle was determined immediately and 300 ml of solution required 6.2 ml of 0.025N Na2S2O3. The second sample was incubated for five days and in DO determination, 300 ml solution required 3.2 ml of 0.025N Na2S2O3. Calculate the BOD of the sample. [L3], a
6. Define BOD and COD. 25 ml of sewage water was mixed with 25 ml of K2Cr2O7, acidified and refluxed. The unused K2Cr2O7 required 9.2 ml 0.2 N FAS. In a blank titration 25 ml of K2Cr2O7 required 18.1 ml of 0.2 N FAS. Calculate COD of sample.[L3], a
7. What is desalination? Explain the desalination of sea water by electrodialysis process. [L2], a