(REVISED COURSE)   QP Code : **11950**

(2 Hours)   [Total Marks : 60

N.B. : (1) Question No.1 is **compulsory**.
  (2) Answer any **three** questions from the remaining **five**.
  (3) **All questions carry equal** marks.
  (4) Atomic weight:— C=12, O=16, N=14, S=32, Cl=35.5 H=1, Ca=40, Mg=24, Na=23, Al=27, K=39.

1. Solve any **five** :—   15
  (a) Define cloud point and pour point. Discuss its significance.
  (b) Explain the principle of EDTA method.
  (c) Distinguish between thermoplastic and thermosetting resins.
  (d) Write a brief note on CNT's.
  (e) Explain the reduced Phase rule.
  (f) Explain the role of plasticizers and lubricants in the compounding of plastics.
  (g) 25 ml of sewage water is refluxed with 0.1 N $K_2Cr_2O_7$ solution in presence of H_2SO_4 and Ag_2SO_4. The unreacted dichromate required 5.5 ml of 0.1N FAS solution. Bank titration consumed 15ml of 0.1N FAS solution. Calculate COD of the effluent in mg/l. mg | lit

2. (a) Calculate the amount of lime (85% pure) and soda (95% pure) required to soften one million liters of water which contains: 6
  $MgCO_3$=8.4 ppm, $CaCl_2$ =22.2 ppm, $MgCl_2$=9.5 ppm, CO_2=33 ppm, HCl=7.3 ppm, KCl=16.8 ppm.   5
  (b) Explain the two-component, Pb-Ag system with an appropriate phase diagram.   4
  (c) Write the preparation and uses of (any **one**)
    (i) Dolomite Bricks   (ii) Silicon Carbide bricks   6

3. (a) What are the conditions for the use of solid lubricants? Explain the structure and uses of graphite.   5
  (b) What is vulcanization? Explain with proper reaction. Mention the advantages of vulcanized rubber.   4
  (c) Explain the following terms giving **two** suitable examples.
    (i) Phase   (ii) Component   6

4. (a) Give the preparation, properties and uses of (any **two**)
    (i) PMMA
    (ii) Kevlar
    (iii) Buna-S rubber   5
  (b) Explain the zeolite method for softening of water including the following points. : Diagram, process with reaction, regeneration with reactions.

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(c) 2.5g of vegetable oil was mixed with excess of KOH solution and heated with reflux condenser. The mixture required 16.5ml of 0.5N HCl. The blank titration reading was 40.1 ml of same HCl. Find saponification value of oil.   4

5. (a) Write short notes on (any **one**)   6
     (i) Decay of concrete and its prevention.
     (ii) Setting and hardening of cement.

(b) What is fabrication of plastics? Explain the injection moulding method with the help of neat diagram.   5

(c) The hardness of 10,000 Litres of hard water sample was completely removed by passing it through a zeolite softener. The zeolite softener required 5000 litres of NaCl solution containing 1170 mg of NaCl/litre. Determine the hardness of water sample.   4

6. (a) Discuss the following treatment methods for municipal water (any **two**)   6
     (i) Bleaching powder
     (ii) Ozone
     (iii) Chlorine.

(b) Discuss any **two** the following :—   5
     (i) Glass transition temperature
     (ii) Polymers in medicine and surgery
     (iii) Conducting polymers

(c) Write a note on blended oils. (any **four** additives)   4

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Correction :

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READ AS :

Q. 1 (g). 25 ml of sewage water is refluxed with 0.1 N $K_2Cr_2O_7$ solution in presence of H_2SO_4 and Ag_2SO_4. The unreacted dichromate required 5.5 ml of 0.1N FAS solution. **Blank titration** consumed 15ml of 0.1N FAS solution. Calculate COD of the effluent in **mg / lit.**

INSTEAD OF:

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READ AS :

Q.6 (b). Discuss any two **of** the following

ISTEAD OF:

Q.6(b) Discuss any two the following

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Query Update time : 22/12/2014 11:41