SUBJECT CODE NO: E-331
FACULTY OF ENGINEERING AND TECHNOLOGY
F.E.(All) Examination Nov/Dec 2017
Engineering Chemistry & Environmental Sci.
(OLD)

[Time: Two Hours]   **[Max.Marks:40]**

Please check whether you have got the right question paper.

N.B
- i.   Question No. 1 is compulsory
- ii. Solve any two questions from the remaining questions
- iii. Figure to the right indicate full marks
- iv. Use of non-programmable calculator is allowed

Q.1 Answer the following questions. (<u>any five</u>)   10
- 1) How regeneration of zeolite done.
- 2) Why hardness due to $Ca(HCo_3)_2$ salts are known as temporary hardness?
- 3) What are the types of coal?
- 4) Give composition of petroleum
- 5) Write example of thermo soft plastic & synthetic rubber.
- 6) Write the name of raw materials used to prepare styrene rubber.
- 7) Write disadvantages of Hard water
- 8) Distinguish between solid fuels & liquid fuels.

Q.2   a) Define temporary and permanent hardness of water? How it is determine by EDTA method?   06

         b) Write advantages & limitations of Ion exchange process of water softening   05

         c) Give the applications of PH meter & conductometer   04

Q.3   a) What is proximate analysis of coal sample? Write its significance   06

         b) Determine the gross calorific value of the coal sample from following data.   05
         1) Weight of coal sample=0.85g
         2) Water equivalence of calorimeter=440g
         3) Weight of water in calorimeter=2560g
         4) Rise of temperature =2.42℃
         5) Cooling correction =0.052℃
         6) Fuse wire correction = 10cal
             If the coal containing 6% hydrogen calculate gross calorific value

c) Define   04
   1) Octane numbers
   2) Cetane numbers
   3) Calorific value
   4) Net calorific value

Q.4   a) Give preparation, properties & applications of PVC   06

        b) Define elastomers. Discuss the structure of elastomers   05

        c) Define polymers? How they are classified   04

Q.5   a) Define scale & sludge? What are disadvantages of them in boiler   05

        b) Define alkalinity? Give its disadvantages.   03

        c) Explain addition polymerization with example   04

        d) How coal are classified? Mention their uses.   03

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