**B.Sc. Degree Chemistry (C.B.C.S.S.) Examination**

**Model Question Paper**

**Sixth Semester**

CHOICE BASED CORE COURSE-PETROCHEMICALS

Time: Three Hours Maximum marks: 80

Section A

(Answer all questions. Each question carries 1 mark)

1. Define octane number.

2. Role of TEL in petrochemical industry is ……….

3. What is doctor solution?

4. What is sour spirit?

5. How is carbon black prepared from methane?

6. What is Naphtha?

7. Name the hydrocarbon in natural gas.

8. Give the composition of LPG

9. What are petrochemicals?

10. Give the chemical name of Gutta-Purcha. (1 x10=10)

Section B

(Answer any 8 questions. Each carries 2 marks)

11. How acetylene can be prepared?

12. Write the method of manufacture of butanediols?

13. Give the condition required for the hydration of ethane to ethanol

14 How will you convert ethylene to acrylonitrile?

15. Write the uses of cumene.

16. Briefly explain the chemistry of detergent action.

17. How will you prepare neoprene rubber?

18. How is anti-knocking property of a fuel improved?

19. Write the reactions involved in the conversion of methane to methanol.

20. Define octane number.

21. What do you mean by refining of petroleum?

22. How is CS2 prepared from methane? (2x8=16)

Section C

(Answer any 6 questions. Each carries 4 marks)

23. Discuss the method of distillation of crude oil.

24. Explain the mechanism and application of reforming

25. Discuss the characteristics of hydrocarbon fuels.

26. What are viscosity reducers? Give examples?

27. What is the effect of sulphur compounds in petroleum products?

28. Discuss the various catalysts used in petrochemical industry and their selectivity.

29. Write briefly the importance of petroleum industry in context of Indian economy

30. Suggest suitable methods for the conversion of

 a) Ethylene to ethane 1, 2 diol

 b) Ethylene to propylene

31. How is PVC prepared from ethylene? (6x4=24)

Section D

(Answer any 2 questions. Each carries 15 marks)

32. a)Discuss the free radical mechanism of cracking taking the example of n-hexane.

 (5marks)

 b) Write the reaction path for obtaining i) vinyl chloride from acetylene

 ii) Glycerin from propylene (2x5marks)

33.a) Give the preparation and industrial application of

 i) Naphthalene ii) Buna Rubber (2x3 marks)

 b) Starting from methane how are the following synthesised:

 i) Chloroform ii) Formic acid iii) Hydrogen cyanide (3x3marks)

34. a) Write briefly on types of cracking, mechanism and chemical changes occurring

 during cracking. (9 marks)

 b) Write briefly on the manufacture of oligomer from C-4hydrocarbon. (3 marks)

 c) Explain hydroformylation of alkenes (3 marks)

35. a) Explain the mechanism and application of oxidation, hydration and ammoxidation

 (9 marks)

 b) Discuss the manufacture of the following

 i) Carbon black from methane ii) Toluene ( 6 marks)

 (2x15=30)