

**2023**  
**B.A./B.Sc.**  
**Third Semester**  
 SKILL ENHANCEMENT COURSE – 1  
**CHEMISTRY**  
*Course Code: CHS 3.11*  
 (Fuel Chemistry)

*Total Mark: 35*  
*Time: 2 hours*

*Pass Mark: 14*

Answer two questions, taking one from each unit.

**UNIT-I**

1. (a) What is calorific value? Explain taking specific examples. 1+3=4
- (b) What are coals? Discuss the uses of coal in various industries. 1+4=5
- (c) What is water gas? Give its preparation, composition and uses. 1+1+1+1=4
- (d) Write a note on the following:
  - (i) Hydrogasification 2½
  - (ii) Catalytic gasification 2
2. (a) What are fuels? Give the classification of fuels. 1+2½=3½
- (b) Discuss the process of liquefaction of coal with diagram. 6
- (c) Explain the process of fractionation of coal tar. 5
- (d) Write a note on the following: 1½×2=3
  - (i) Coal gas
  - (ii) Producer gas

**UNIT-II**

3. (a) What is oil refining process? 2½
- (b) What is catalytic cracking? Explain the different types and give the advantages of catalytic cracking. 1+4+1=6
- (c) What are lubricants? How are they classified based on the composition? 1+4=5
- (d) Write a note on liquid fuels. 4

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| 4. (a) What is LPG? How are they manufactured?  | 3½ |
| (b) Discuss the working principle of gobar gas plant.   | 6  |
| (c) Explain the products obtained from petroleum. How are they classified based on their boiling temperature? | 5  |
| (d) Write a note on conducting and non-conducting lubricating oils.   | 3  |
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