

Unit IV

No. of Printed Pages : 04

Roll No.

7. Write a note on Tidal energy. 15
8. Differentiate between wave and hydrogen energy. 15

G83

B. Tech. EXAMINATION, May 2019

(Seventh Semester)

(B. Scheme) (Re-appear Only)

(CHE)

CHE405B

ENERGY TECHNOLOGY

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Assume missing data if any.

M-G83

4

40

(2-15/15) M-G83

P.T.O.

Unit I

1. (a) Explain the points in favour of 'in situ' theory. **5**
(b) Differentiate between proximate and ultimate analysis. **10**
2. (a) Explain in detail the objectives of coal washing. **8**
(b) Explain in detail the salient features of how temperature carbonisation and high temperature carbonisation. **7**

Unit II

3. (a) Depending on the nature of hydrocarbon present in it, crude petroleum is classified into many types. Explain any *one* type in detail. **8**
(b) Differentiate between thermal and catalytic cracking in detail. **7**
4. (a) Explain Dubbs thermal cracking process in detail. **8**
(b) Explain the effect of variables in catalytic reforming. **7**

M-G83

2

Unit III

5. (a) Explain the reaction zones in a producer gas. **5**
(b) Explain the difference between natural and artificial draught. **10**
6. (a) What is Pulsating combustion ? Explain. **5**
(b) Explain any *one* method in detail for burning gaseous fuels. **5**
(c) The fuel gas from an industrial furnace have the following composition by volume :
 $\text{CO}_2 = 11.73\%$, $\text{CO} = 0.2\%$, $\text{N}_2 = 0.09\%$, $\text{O}_2 = 6.81\%$, $\text{N}_2 = 81.1\%$
Calculate the percentage excess air employed in the combustion, if the loss of carbon in clinker and ash is 1% of the fuel used and fuel has following composition by weight :
 $\text{C} = 74\%$, $\text{H}_2 = 5\%$, $\text{O}_2 = 5\%$, $\text{N}_2 = 1\%$, $\text{S} = 1\%$, $\text{H}_2\text{O} = 9\%$ and ash = 5%

(2-15/16) M-G83

3

P.T.O.