

520201**May 2024****M.Tech. (LEEE)-II Semester
Fuel Technology (MTEVE-201A)**

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) What is a fuel? (1.5)
(b) Divide the energy resources depending upon state of development. (1.5)
(c) Mention the source of pure carbon. (1.5)
(d) What is Anthracite? (1.5)
(e) Mention the difference between the biodiesel and bioethanol. (1.5)
(f) Explain in brief the hydrogen as a fuel. (1.5)
(g) What is waste energy? (1.5)
(h) What is low grade energy? (1.5)

- (i) Define adiabatic flame temperature. (1.5)
(j) Give the examples of Gaseous fuel. (1.5)

PART-B

2. (a) What is Solar Energy? Explain it as a "Future source of energy". (10)
(b) What do you mean by energy crisis? Mention its effects on society. (5)
3. (a) What is coal preparation? Explain in brief the steps involved. (5)
(b) What would be ideal properties of a fuel? (10)
4. What is Coal Carbonization? Explain in detail Low temperature and high temperature carbonization. (15)
5. (a) List the biomass conversion technologies. Discuss in brief any *one*. (5)
(b) What is Stoichiometric? Explain its significance. (10)
6. Discuss in detail a biogas plant with diagram. (15)
7. Write short notes on following :
- (a) Efficient Combustion appliance for solid fuels.
(b) Fuel cell.
(c) Present and future scenario of energy demand in India. (5×3=15)