Energy Science and Engineering (KOE-043) Important Questions

Unit-1

1. Define energy and write its characteristics.

2. Define entropy.

3. What is quantum and explain energy quantization.

4. Define mechanical energy and its conversion to different energy.

5. Define electromagnetic radiation of sun and its different components.

6. Define exothermic reaction and endothermic reaction.

7. Differentiate between refrigerator and heat pump. State the application of refrigeration.

8. How internal combustion engines work?

9. Explain the working principle of Carnot heat engine.

10. What is the difference between Carnot heat engine and Stirling heat engine.

Unit-2

1. Define nuclear force.

2. Define mass defect.

3. Draw the binding energy curve showing variation of binding energy per nucleon with

mass number.

4. Define alpha decay, beta decay and gamma decay.

5. What is nuclear fusion? How does it differ from nuclear fission?

6. Explain the working principle of nuclear reactor power plant and its safety features.

Unit-3

1. Explain attenuation of solar radiation.

2. Explain the difference between direct radiation and diffuse radiation.

3. Define semiconductors.

4. What is the difference between intrinsic and extrinsic semiconductor?

5. How holes are produced in semiconductors?

6. What is the difference between p type semiconductor and n type semiconductor?

7. What is the principle of solar cell?

8. Explain with a neat sketch, working of a solar cell.

9. What is the difference between first generation, second generation and third generation

solar cell?

Unit-4

1. What are conventional and non-conventional energy sources? Write short notes on

classification of energy sources.

2. Define biomass and fossil fuels.

3. What is the difference between horizontal axis wind turbine ad vertical axis wind turbine.

4. How tides are generated?

5. Give the sources of geothermal energy.

6. Write the difference between geothermal power plant and thermal power plant?

7. How tidal power plants are classified and what are the limitations of tidal power plant?



8. Explain the working principle of ocean thermal energy conversion technology.

Unit-5

1. Review the energy scenario in India and world in brief.

2. Define energy system and synthesis.

3. What is green energy? What are the benefits of green energy?

4. Briefly explain the different types of storage systems.

5. Explain nuclear fuel cycle.

6. What are the causes responsible for climate change?

7. Define sustainability.

8. Define energy conservation and briefly explain different methods to do i