

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI- 86**  
**(For candidates admitted during the academic year 2016 – 17)**

**SUBJECT CODE : 16VS/VM/ET26**

**B. Voc. DEGREE EXAMINATION**  
**SUSTAINABLE ENERGY MANAGEMENT**  
**SECOND SEMESTER**

**REG. NO : \_\_\_\_\_**

**COURSE : MAJOR CORE**

**PAPER : ENERGY CONVERSION TECHNIQUES (THEORY)**

**TIME : 5 HOURS**

**MAX. MARKS : 100**

**(Theory: 50marks +Practical: 50 marks)**

**SECTION – A**

**ANSWER ON THE QUESTION PAPER ITSELF**

**ANSWER ALL QUESTIONS**

**(20 X 1 = 20)**

**I. Choose the correct Answer:**

1. Thermal energy is converted into mechanical energy using  
a) water engine      b) steam engine      c) heat engine      d) gas engine
2. The kinetic energy of \_\_\_\_\_ can be converted into mechanical energy using windmills.  
a) air      b) wind      c) gas      d) water
3. To establish a large voltage in thermoelectric material its conductivity should be  
a) low      b) high      c) infinite      d) zero
4. \_\_\_\_\_ stores mechanical energy.  
a) pendulum      b) wire      c) battery      d) flywheel
5. Thermoelectric refrigerators use the principle of  
a) Peltier effect      b) Seebeck effect      c) Thomson effect      d) Stark effect
6. The capacity of a capacitor is directly proportional to  
a) volume      b) area      c) density      d) mass
7. The bioreactors are made up of  
a) iron      b) steel      c) nickel      d) cobalt
8. Hydrogen and water can be split by a process called  
a) electrolysis      b) catalysts      c) converter      d) inverter

**II. Fill in the Blanks:**

9. Mechanical energy can be converted into electricity using \_\_\_\_\_ generators.
10. A thermoelectric module needs a \_\_\_\_\_ temperature gradient to generate electricity.
11. Ferro magnetic material is heated \_\_\_\_\_ its curie point in thermomagnetic converter.
12. Electrical energy can be stored in \_\_\_\_\_.
13. Typical conversion efficiencies of fuel cells are \_\_\_\_\_.
14. A device that stores energy is sometimes called an \_\_\_\_\_.
15. The two main types of thermodynamic processes are \_\_\_\_\_ and \_\_\_\_\_.
16. Modern DSSC contains \_\_\_\_\_ dioxide.

**III. Answer in a sentence or two:**

17. Give an example for mechanical energy
  
  
18. What is a ferro electric converter ?
  
  
19. Explain the term energy storage
  
  
20. What are the two chemical process involved in bio reactors

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**SECTION – B**

**Answer any SIX questions:**

**(6x3= 18)**

1. List the different forms of energy.
2. What is energy conversion explain with example.
3. Write two advantages and disadvantages of thermoelectric converter.
4. What is the principle behind thermoelectric refrigerator?
5. State the uses of battery.
6. Distinguish the difference between DSSC and QDSSC.
7. What are the advantages of Pumped hydro storage and Compressed air energy storage?
8. Why is flywheel energy storage so important in industrial applications?
9. Explain photo catalysis with example.

**SECTION – C**

**Answer any TWO questions:**

**(2x6 = 12)**

10. Enumerate Reversible and irreversible cycles.
11. Explain in detail the principles of thermomagnetic converter with suitable diagram.
12. Describe in detail on batteries with its performance governing parameter.
13. Explain electrical storage systems and its types?

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