

## Scheme - I

### Sample Question Paper

**Program Name** : Diploma in Chemical Engineering  
**Program Code** : CH  
**Semester** : Fifth  
**Course Title** : Renewable Energy Technologies (Elective)  
**Marks** : 70

**22514**

**Time: 3 Hrs.**

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#### Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

#### Q.1 Attempt any FIVE.

**10 Marks**

- a) Write the concept of wind energy.
- b) State the two applications of wind energy.
- c) Give the concept of solar energy.
- d) State the two applications of bio-energy from solid biomass.
- e) Write the four merits of bio- energy from solid bio- mass.
- f) Write the four demerits of bio -energy from liquid- biomass.
- g) List the industrial applications of fuel cell.

#### Q.2 Attempt any THREE.

**12 Marks**

- a) Write the construction and working of wind turbine.
- b) Give the construction and working of wind mill.
- c) Describe working of grid connected wind turbine
- d) Explain the applications of wind turbine for water pump.

#### Q.3 Attempt any THREE.

**12 Marks**

- a) Write the sources and application of solar energy.
- b) Explain the construction and working of solar water heating system
- c) Describe the construction and working of solar photovoltaic system

d) Give brief idea regarding solar distillation and cooling in chemical industry.

**Q.4 Attempt any THREE.**

**12 Marks**

- a) Explain the construction and working of preparation of energy from wood
- b) Describe the formation of energy from kitchen bio-mass
- c) Write the demerits of bio- energy from solid bio-mass
- d) Give the concepts of bio-energy from solid biomass. Illustrate it with suitable example
- e) Write the merits of bio- energy from solid bio-mass

**Q.5 Attempt any TWO.**

**12 Marks**

- a) Write the concept and principle used for preparation of bio –energy from liquid bio -mass
- b) Explain the preparation of bio-diesel from jatropha plant with chemical reaction if any
- c) How the bio-diesel is prepared from plastic waste write chemical reaction occur

**Q.6 Attempt any TWO.**

**12 Marks**

- a) Explain concept and principle used in fuel cell
  - b) Write the construction working of fuel cell with labeled diagram giving its chemical reaction
  - c) State the merits and demerits of fuel cell.
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## Scheme - I

### Sample Test Paper - I

**Program Name** : Diploma in Chemical Engineering  
**Program Code** : CH  
**Semester** : Fifth  
**Course Title** : Renewable Energy Technologies (Elective)  
**Marks** : 20

**22514**

**Time: 1 Hour**

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#### Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

#### Q.1 Attempt any FOUR.

**08 Marks**

- a) Write the principle used in Wind Energy.
- b) List four applications of Wind Turbine for Water Pumping.
- c) Give the two uses of Wind Energy.
- d) What do you mean by Solar Energy?
- e) Give the two criteria's used for selection of suitable SPV System.
- f) Write the four application solar Energy.

#### Q.2 Attempt any THREE.

**12 Marks**

- a) Give the construction and working of Wind Mill
  - b) Give the construction and working of Wind Turbine.
  - c) Write the construction and working of Grid Wind Turbine.
  - d) Describe the construction and working of Solar Photo Voltaic System.
  - e) Write the construction and working of Solar Water Heating System.
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## Scheme - I

### Sample Test Paper - II

**Program Name** : Diploma in Chemical Engineering  
**Program Code** : CH  
**Semester** : Fifth  
**Course Title** : Renewable Energy Technologies (Elective)  
**Marks** : 20

**22514**

**Time: 1 Hour.**

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#### Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

#### Q.1 Attempt any FOUR.

**08 Marks**

- a) What do you mean by Bio- Energy.
- b) Write the two merits of Bio -Energy from Solid Bio –Mass.
- c) State the principle use for preparation of Bio- Energy
- d) Give the two merits of Bio -Energy from liquid Bio -Mass.
- e) List the four industrial application of Fuel Cell.
- f) What is the concept of fuel cell.

#### Q.2 Attempt any THREE.

**12 Marks**

- a) Write the construction and working of formation of energy from Wood.
  - b) Explain the preparation of Bio -Energy from Kitchen Bio -Mass.
  - c) Describe the preparation of Bio- Diesel from Jetrophata plant.
  - d) How the Bio -Diesel is prepared from plastic waste?
  - e) Give the construction and working of fuel cell
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