

**2025/FYUG/ODD/SEM/
PHYSEC-201T/200**

FYUG Odd Semester Exam., 2025

PHYSICS

(3rd Semester)

Course No. : PHYSEC-201T

(Renewable Energy and Energy Harvesting)

Full Marks : 50

Pass Marks : 20

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

UNIT—I

1. Answer any three from the following : $1 \times 3 = 3$

- (a) What do you mean by energy?**
- (b) What is the unit of work done in c.g.s. system?**
- (c) State one primary process under biochemical conversion.**
- (d) Which country uses tidal energy most?**

(2)

2. Answer any one from the following :
- (a) Explain the difference between primary and secondary energy.
 - (b) What do you mean by commercial energy? Give one example.

3. Answer any one from the following :
- (a) How can renewable energy affect the environment? What are the two biggest energy issues currently faced by human being?
 - (b) (i) Explain the difference between renewable and non-renewable energy.

- (ii) What is power consumption of electricity? State the unit of power consumption.

UNIT—II

Answer any three from the following :

- (a) Will solar energy replace fossil fuels?
- (b) State one disadvantage of fossil fuel.
- (c) What is biomass?
- (d) What type of pollution does hydropower produce?

(3)

5. Answer any one from the following : 2
- (a) How is biogas energy generated?
 - (b) Write two advantages of nuclear energy.

6. Answer any one from the following : 5
- (a) What is fossil fuel? Explain the different classes of fossil fuels. 1+4=5
 - (b) Write a short note on non-conventional energy sources and their sustainability.

UNIT—III

7. Answer any three from the following : 1×3=3

- (a) What do you mean by solar pond?
- (b) State the function of photovoltaic.
- (c) What is the difference between a battery and a cell?
- (d) What is the use of solar cell?

8. Answer any one from the following : 2

- (a) What is solar energy? Mention one of its applications. 1+1=2
- (b) Write two characteristics of photovoltaic (PV) system.

(Turn Over)

(4)

- Answer any one from the following :
- (a) What are the potential challenges in implementation of solar energy? State the future potential for solar power.
 - (b) Write short notes on :
 - (i) Solar distillation
 - (ii) Solar cooker

UNIT—IV

10. Answer any three from the following :
- (a) What type of energy is wind energy?
 - (b) How many types of wind turbine systems are there?
 - (c) What do you mean by ocean energy?
 - (d) Mention one example of wind energy.

Answer any one from the following :

- (a) How are ocean waves converted to electricity?
- (b) State the difference between onshore wind energy and offshore wind energy.

93

(Continued 26J/693

(5)

- Answer any one from the following : 5
- (a) How does ocean thermal energy work? State the advantages of ocean thermal energy. 2+3=5

- (b) Write a short note on tide characteristics and statistics. 2+2=4

UNIT—V

11. Answer any three from the following : 1×3=3

- (a) What is piezoelectric material?
- (b) What pollution does hydropower produce?
- (c) Does hydroelectricity produce greenhouse gases?
- (d) What is geothermal technology?

14. Answer any one from the following : 2

- (a) Explain briefly why geothermal energy is not widely used.
- (b) How does piezoelectric energy harvesting work?

(Turn Over)

15. Answer any one from the following :

- (a) What are the positive and negative effects of hydropower on the environment? How can hydropower be more environmentally friendly?
- (b) What are piezoelectric parameters? Explain the characteristics of piezoelectric effect.
