

**2025/FYUG/ODD/SEM/  
PHYIDC-201T/201**

**FYUG Odd Semester Exam., 2025**

**PHYSICS**

**( 3rd Semester )**

Course No. : PHYIDC-201T

**( Renewable Energy and Energy Harvesting )**

Full Marks : 70

Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks  
for the questions

**UNIT—I**

Answer any four from the following :  $1 \times 4 = 4$

- (a) Define work.
- (b) Write down the SI unit of energy.
- (c) What is the unit of power in SI unit?
- (d) Write down the dimension of energy.
- (e) What is one erg in terms of newton?

( Turn Over )

( 2 )

2. Answer any one from the following :

- (a) What are the classifications of energy sources? Write down few examples of these sources.
- (b) Explain renewable and non-renewable energy sources with example.

3. Answer any one from the following :

- (a) What are commercial and non-commercial energy sources? Name two non-commercial sources of energy. Write down few uses of commercial sources of energy.
- (b) Write down five differences between renewable and non-renewable energy sources. Write down few limitations of non-renewable energy sources.

UNIT—II

4. Answer/Choose the correct option from the following (any four) :

- (a) Write down one primary use of petroleum.

( 3 )

Which element is commonly used as fuel in nuclear reactors?

- (i) Carbon
- (ii) Uranium
- (iii) Hydrogen
- (iv) Nitrogen

Explain green energy.

- (c) Write down the composition of natural gas.

Which of the following is a conventional source of energy?

- (i) Solar
- (ii) Wind
- (iii) Coal
- (iv) Geothermal

5. Answer any one from the following :

- (a) Define nuclear energy. What are the types of nuclear reaction?
- (b) What are the main disadvantages of nuclear energy?





( 4 )

Answer any one from the following :  
(a) What are the needs of eco-friendly energy protection? Why is coal considered as non-renewable? Write down few advantages of nuclear energy.

What are the types of nuclear reactions? Define them. Write down nuclear reactor. Explain nuclear energy three advantages of nuclear reactor. Write down few advantages of nuclear reactor.

7.

Answer/Choose the correct option from the following (any four) :  
UNIT—III

- (a) What is the main environmental benefit of using hydropower? 1+2+3=6
- (b) What is the primary use of geothermal energy? 1+2+3=6
- (c) What is the main component of biogas? 1+2+3=6
- (d) What is wind energy? 1+2+3=6
- (e) What is the primary challenge associated with the use of tidal energy? 1+2+3=6
- (i) High carbon emission
- (ii) Noise pollution
- (iii) Limited availability of suitable sites
- (iv) High operational costs

( 5 )

Answer any one from the following :  
(a) Write down two uses of tidal energy. 2

(b) Write down the principle of hydro-electric power.

Answer any one from the following : 8

(a) Explain in detail the conversion of tidal energy into thermal energy. Write down three uses of thermal energy. 5+3=8

(b) Define geothermal energy. Write down few uses and limitations of this energy. 2+6=8

UNIT—IV

Answer any four from the following : 1×4=4

- (a) What is solar energy?
- (b) Write down one primary component of a solar panel.
- (c) Which technology is used to directly convert sunlight into electricity?
- (d) What is sun tracking system?
- (e) What is photovoltaic cell?



( 6 )

1.

Answer any one from the following :

(a) Write down two importances of solar energy.

(b) What is the function of photovoltaic cell?

12.

Answer any one from the following :

(a) Write down few merits and demerits of solar energy. How does solar work?

(b) What is solar cell? Write down few applications of solar cell.

13.

UNIT—V

Answer/Choose the correct option from the following (any four) :

(a) What is the main cause of acid rain?

(b) What is deforestation?

(c) Write down the name of one gas which is primarily responsible for the greenhouse effect.

( 7 )

What is the primary source of marine pollution?

(i) Agricultural runoff

(ii) Plastic waste

(iii) Oil spills

(iv) Industrial waste

(e) What is the main cause of the depletion of the ozone layer?

Answer any one from the following : 2

(a) Explain global warming.

(b) Explain the depletion of ozone layer.

15. Answer any one from the following : 8

(a) How can we reduce air pollution? What are the effects of air pollution in human health? How is air pollution contributing to global warming? 3+3+2=8

(b) What are the effects of thermal power station on environment? Explain in detail environmental degradation due to biological damage. 4+4=8

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