

**2024/FYUG/ODD/SEM/  
PHYIDC-201T/061**

**FYUG Odd Semester Exam., 2024**

**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**

1. Answer any four from the following :  $1 \times 4 = 4$
- (a) What is the physical definition of energy?
  - (b) What is the SI unit of energy?
  - (c) Define power.
  - (d) Write two examples of secondary energy.
  - (e) What is Zettajoule (ZJ)?

**J25/641**

*( Turn Over )*

( 2 )

2. Why is coal considered a primary energy source but electricity a secondary energy source? 2

OR

3. How does energy influence economic development? 2
4. Explain the difference between primary and secondary energy sources with examples. How does a primary source get converted into a secondary source? Is petrol a secondary source of energy? Name two commercial sources of energy. 3+2+1+2=8

OR

5. What are the benefits of renewable energy system? Which are the most commonly used renewable energy sources? What are the pros and cons of non-renewable energy? 2+2+4=8

**UNIT—II**

6. Answer any four from the following : 1×4=4
- (a) Write two examples of conventional energy sources.
- (b) What is full form of CNG?
- (c) What is coal?
- (d) Write the full form of LPG.
- (e) What do you mean by green energy?

J25/641

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( 3 )

7. Name two major sectors where energy consumption is critical. What is commercial sector of energy consumption? 2

OR

8. State two disadvantages of nuclear energy. 2
9. Describe the process of coal extraction and its major uses. What are the environmental impacts associated with coal mining and combustion? Why is coal considered a non-renewable energy source? 2+2+2+2=8

OR

10. Write the advantages and disadvantages of using (a) natural gas (b) coal and (c) oil. Why is there an increasing emphasis on eco-friendly and green energy solutions? 2+2+2+2=8

**UNIT—III**

11. Answer any four from the following : 1×4=4
- (a) Give two examples of non-conventional energy sources.
- (b) Why do we need renewable energy?
- (c) What is wind energy?
- (d) Give two examples of biomass.
- (e) Write one disadvantage of renewable energy.

J25/641

( Turn Over )

( 4 )

12. What is tidal energy? Mention one limitation of tidal power generation system. 2

OR

13. Where are the fixed-foundation offshore wind turbines usually constructed? Is it a renewable energy generation system? 2

14. What are the raw materials of biomass? How are they processed? Write the advantages and disadvantages of using biomass as a fuel. 2+3+3=8

OR

15. What is geothermal energy? Write its advantages and disadvantages. 2+3+3=8

#### UNIT—IV

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

- (a) What is solar energy?
- (b) How can solar energy be used?
- (c) Does solar water heater use electricity?
- (d) What is the another name of a solar cell?
- (e) What is sun-tracking system?

J25/641

( Continued )

( 5 )

17. State two applications of solar energy. 2

OR

18. What is the function of solar greenhouse? 2

19. How does the solar power work? State three merits and three demerits of using solar energy for domestic use. 2+3+3=8

OR

20. What is solar cooker? How does a solar cooker work? What are the benefits of using solar cooker? 2+3+3=8

#### UNIT—V

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

- (a) What do you mean by environmental pollution?
- (b) Which solar radiation is restricted by ozone layer?
- (c) What is called global warming?
- (d) Who invented hydroelectricity?
- (e) State one application of ocean energy.

22. Mention two steps to reduce air pollution. 2

J25/641

( Turn Over )

( 6 )

OR

23. Write two adverse effects of thermal power station. 2

24. What do you mean by solar energy harvesting? What are the processes of harvesting solar energy? Mention two advantages of solar energy harvesting. 2+4+2=8

OR

25. Write short notes on the following : 4+4=8

(a) Environmental degradation due to energy production and utilization

(b) Depletion of ozone layer

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J25—330/641

2024/FYUG/ODD/SEM/  
PHYIDC-201T/061