

D 90916

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Name.....99.....

Reg. No.....

**FIFTH SEMESTER B.A./B.Sc./B.Com. DEGREE EXAMINATION
NOVEMBER 2015**

(UG—CCSS)

Open Course

PH 5D 01 (1)/AP 5D 01 (1)—NON-CONVENTIONAL ENERGY SOURCES

(2009–2012 Admissions)

Time : Three Hours

Maximum : 30 Weightage

Section A

Answer all questions.

Each question carries $\frac{1}{4}$ weightage.

1. Solar energy reaching the top of the earth's atmosphere consists of about _____ per cent Visible radiations.
 - (a) 46.
 - (b) 56.
 - (c) 66.
 - (d) 76.
2. Solar water heater cannot be used to get hot water on :
 - (a) Sunny day.
 - (b) A cloudy day.
 - (c) A hot day.
 - (d) A windy day.
3. A good source of energy is one which :
 - (a) Performs a large amount of work per unit volume or mass.
 - (b) It is easily accessible.
 - (c) It is economical.
 - (d) All of the above.
4. A solar cell is made of :
 - (a) An insulating material.
 - (b) A conducting material.
 - (c) A semiconducting material.
 - (d) An alloy.
5. Wind power potential in our country is about _____ MW :
 - (a) 5,000.
 - (b) 10,000.
 - (c) 15,000.
 - (d) 20,000.

Turn over

6. Minimum speed of wind to operate generator to produce electricity is _____.
- (a) 5 km/h. (b) 10 km/h.
(c) 15 km/h. (d) 20 km/h.
7. Which of the following country is the leader in harnessing the wind energy for producing electricity?
- (a) Germany. (b) Denmark.
(c) India. (d) China.
8. Wind speed between 7 m/s to 27 m/s can generate _____ of electrical power.
- (a) 1 MW. (b) 2 MW.
(c) 3 MW. (d) 4 MW.
9. Biomass of dead animals and plants can be converted into fossil fuel under the earth due to :
- (a) High temperature and low pressure.
(b) Low temperature and high pressure.
(c) High temperature and high pressure.
(d) Low temperature and low pressure.
10. Charcoal is not used as a domestic fuel because it :
- (a) Causes environmental pollution.
(b) Produces less heat energy.
(c) Cannot be stored easily.
(d) Is expensive fuel.
11. Biogas is obtained by anaerobic degradation of biomass in the presence of _____.
12. Aviation fuel is a special grade of _____.

(12 × ¼ = 3 weightage)

Section B

*Answer all nine questions.
Each question carries a weightage of 1*

13. Give the applications of solar air heaters.
14. Explain the mechanism of flow of water in flat-plate collector.
15. What is wind energy farm ?
16. Name the device used to convert wind energy into mechanical energy and give its principle.
17. How are biogas plants classified ?

18. What is the community biogas plant ?
19. Give a short account on fossil fuel method of hydrogen production.
20. What are the characteristics of good source of energy ?
21. Write a short note on wave energy conversion machine.

(9 × 1 = 9 weightage)

Section C

*Answer any five questions.
Each question carries a weightage of 2.*

22. Explain the advantages of flat plate collectors.
23. List the application of solar ponds.
24. Describe the principle of working of solar furnace.
25. What is the basic principle of wind energy conversion ?
26. What is meant by anaerobic digestion ? Explain briefly.
27. What are the difficulties in tidal power developments ?
28. Write a short note on solar energy method of hydrogen production.

(5 × 2 = 10 weightage)

Section D

*Answer any two questions.
Each question carries a weightage of 4.*

29. Describe the construction and working of a collector used in power plant for generation of electrical energy.
30. Discuss the advantages and disadvantages of horizontal and vertical axis windmill. What methods are used to overcome the fluctuating power generation of windmill ?
31. What are the techniques suggested to maintain the biogas production ? Explain.

(2 × 4 = 8 weightage)