PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(Sixth Semester)

Branch – PHYSICS

CORE ELECTIVE – II ALTERNATE ENERGY RESOURCES

Time : Three Hours   Maximum : 75 Marks

SECTION-A (20 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks   (10 x 2 = 20)

1   Define energy.

2   What is oil shock?

3   Define solar constant.

4   State any two applications of solar pond.

5   Define the term 'photosynthesis'. What are the conditions necessary for photosynthesis process?

6   What is the difference between bio mass and bio gas?

7   What are the applications of geothermal energy?

8   Define wind energy pattern factor (EPF).

9   List the possible areas of utilization of hydrogen in near future.

10   What is a fuel cell?

SECTION – B (25 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

11 a   Explain the usage pattern of primary energy sources.
                        OR
    b   Discuss the scope of alternative energy system in India.

12 a   Explain briefly the working of 'Forced – circulation solar water heater'.
                        OR
    b   Describe briefly a basic type solar still.

13 a   What is 'Thermo-chemical conversion'? Explain briefly.
                        OR
    b   Discuss the applications of biogas.

14 a   What are the basic components of wind energy conversion system (WECS)? Explain them with a neat block diagram.
                        OR
    b   Write a short note on 'Hot dry rocks' (HDR) resources.

15 a   Explain briefly any two methods of hydrogen storage.
                        OR
    b   Explain with a neat diagram the working of hydrogen – oxygen fuel cell.

Cont ...

SECTION - C (30 Marks)
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16   Discuss the primary and secondary energy resources. Also describe the future of non-conventional energy sources in India.

17   Explain briefly the following (a) Solar pond (b) Solar cooker.   (5+5)

18   With a neat diagram, explain the construction and working of floating drum type biogas plant (KVIC model). State also its advantages and disadvantages.   (6+4)

19   Explain briefly the following
      (i)   Propeller type wind mill   (2½)
      (ii) Savonius type wind mill   (2½)
      (iii) Horizontal axis wind machine   (2½)
      (iv) Vertical axis wind machine   (2½)

20   Explain the production of hydrogen by the following methods.
      (i)   Electrolysis of water   (2½)
      (ii) Methane Gas reformation   (2½)
      (iii) Thermo-chemical method   (2½)
      (iv) Solar energy method   (2½)

Z-Z-Z   END