Roll No .....

MEEM - 103

M.E./M. Tech., I Semester

Examination, December 2015

Solar Power Generation

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.
iii) Draw neat diagrams wherever required.

1. a) Define solar constant. Discuss about beam and diffuse radiation.
   b) How solar radiation measurement is done? Describe the principle of Pyranometer.

2. a) What is the potential of solar power in India? Briefly state the solar mission of government of India.
   b) Discuss the role of MNRE, IREDA and other energy societies in improving solar power generation.

3. a) Discuss various solar photovoltaic materials with comparison. State briefly, about Organic PV cells.
   b) Discuss the technology for fabrication of Photovoltaic devices.

4. a) Explain the I-V characteristics of solar cells. State various losses in solar PV panels.
   b) Discuss future prospects and applications of solar photovoltaic.

5. a) Discuss the operation and maintenance of PV systems.
   b) Compare mono-crystalline and poly-crystalline PV cells.

6. a) Discuss how designing of PV systems is done? State the need for different cell designs.
   b) Discuss parabolic trough collector technology.

7. a) Give some latest trends in design of Mega Solar Power Plants.
   b) Discuss the theory of flat-plate solar collector. Draw a neat diagram showing all components. Explain the function of each.

8. Write short notes on following : (Any Two)
   i) Solar distillation
   ii) Passive solar design
   iii) Selective surfaces for solar thermal storage

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