SUBJECT CODE: 16VS/MC/SE16

B.Voc. DEGREE EXAMINATION, NOVEMBER 2016
SUSTAINABLE ENERGY MANAGEMENT
FIRST SEMESTER

REG.NO ……………………..

COURSE : MAJOR CORE
PAPER : SOLAR ENERGY

SECTION- A
ANSWER ON THE QUESTION PAPER ITSELF
ANSWER ALL QUESTIONS (20 X 1 = 20)

CHOOSE THE CORRECT ANSWER:

1. The value of Solar Constant is
   a) 1347 W/m^2 b) 1357 W/m^2 c) 1367 W/m^2 d) 1377 W/m^2

2. Absorption of Solar radiations at earth's surface occur due to presence of
   a) Ozone b) Water vapours c) Carbon di-oxide d) All of the above

3. The zenith angle is the angle made by the sun's rays with the _____ to a _____ surface.
   a) normal, horizontal b) tangent, horizontal c) normal, vertical d) tangent, vertical

4. Beam radiations are measured with
   a) Anemometer b) Pyrheliometer c) Sunshine recorder d) All of the above

5. The following is indirect method of Solar energy utilization
   a) Wind energy b) Biomass energy c) Wave energy d) All of the above

6. The collection efficiency of Flat plate collector can be improved by
   a) putting a selective coating on the plate b) evacuating the space above the absorber plate
   c) both a) and b) d) None of the above

7. Full sunlight is falling on a 15% efficiency solar cell of area 2 m^2 at an angle of incidence of 60 degrees to the normal to the cell. What is the output power of the cell?
   a) 75W b) 150W c) 300 W d) 500 W

8. A module in a solar panel refers to
   a) Series arrangement of solar cells. b) Parallel arrangement of solar cells.
   c) Series and parallel arrangement of solar cells. d) None of the above.

9. The efficiency of the solar cell is about
   a) 25 % b) 15 % c) 40 % d) 60 %

10. The radiation in the sunlight that gives us the feeling of hotness is _____.
    a) visible radiation b) infra-red c) red d) ultra-violet

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FILL IN THE BLANKS:

11. A _____is an analysis of the amount of greenhouse gasses emitted in a process.

12. The ultimate source of energy is _____.

13. An example of a P type semiconductor is _____.

14. Solar cell works on the principle of _____.

15. The unit of power is _____.

ANSWER BRIEFLY:

16. A photocell has a short circuit current of 25 mA, an open circuit voltage of 0.6 V and a maximum power output of 12 mW. What is its fill factor?

17. Define power rating of battery.

18. What is Earthing or grounding.

19. Define efficiency of a solar cell.

20. Define declination angle.

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STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2016–17)

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SECTION B
ANSWER ANY SIX QUESTIONS: **(6×3=18)**

1. What is forbidden energy gap?

2. Write a short note on solar radiation on Earth's surface.

3. What are solar cells?

4. Applications of solar energy.

5. Define declination angle.

6. What is mismatch losses?

7. What are solar concentrators? Give examples.

8. How does a solar HVAC system work?

9. What is net metering?

10. What are solar thermal systems?

SECTION C
ANSWER ANY TWO QUESTIONS: **(2×6=12)**

11. Explain the working principle of a solar cooker.

12. Draw the block diagram of Grid tied PV system and explain

13. What is solar pond. Explain the various applications of the solar pond

14. Elucidate the merits & demerits of solar energy

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