STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2016–2017& thereafter)

B.Voc. DEGREE EXAMINATION, NOVEMBER 2024
SUSTAINABLE ENERGY MANAGEMENT
FIFTH SEMESTER

COURSE : MAJOR CORE
PAPER : SOFTWARE TOOLS FOR ENERGY ANALYSIS
SUBJECT CODE : 16VS/VM/ST56
TIME : 6 HOURS MAX.MARKS: 100
(Theory: 50 Marks + Practical: 50 Marks)

SECTION – A

ANSWER ALL QUESTIONS: (20 x 1 = 20)

I. Choose the correct answer:

1. The operating system requirements to install RET Screen software is _____
   a) Linux b) Ubuntu c) Chrome OS d) Microsoft Windows
2. The SMA is a producer and manufacturer of solar for photovoltaics systems with grid connection, off-grid power supply and backup operations.
   a) Voltmeter b) Ammeter c) Benchmark d) Inverters
3. The required autonomy in absence of sun determines the capacity of _____.
   a) Invertor b) Battery c) MPPT regulator d) Utility
4. Selecting a 24V battery for a 12V requirement is called _____.
   a) Neutral b) Oversizing c) Undersizing d) None of the above
5. eQUEST is an easy to use in building for _____.
   a) Energy analysis b) Architecture c) Lighting d) All the above
6. Electrical Consumption in the eQUEST software is given by _____.
   a) TWh b) BTU c) kWh d) MWh
7. The RETScreen Software is a software package developed by the Government of _____.
   a) Canada b) US c) Russia d) France
8. Some of the cells in RETScreen do not require input data and are _____
   a) Protected b) Already filled c) To be left blank d) No such cells

II. Fill in the blanks:

9. An investor buys ₹1,000 worth of shares and the net profit from the expenses is ₹100, so the ROI is _____.
10. _____ energy tool makes it easy for solar energy professionals to input data, run simulations, and analyze results.
11. Power consumption of a microwave oven in PVSyst software is _____.
12. _____ automatically assesses the financial risk of the proposed investment.

III. State whether True or False:

13. The building footprint in the eQuest software can be customized.
14. The main limitations of RETScreen are that it does not consider the effect of temperature on PV performance analysis.
15. The consumption of power for a personal computer in PVSyst software is 125 W.
16. eQUEST does provide accurate simulation of building features.

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IV Answer in a sentence:

17. Name one software used for Solar energy simulation.
18. Expand LOL.
19. What is the role of a Virtual Energy Analyzer?
20. Name the two types of design wizards.

SECTION – B

ANSWER ANY SIX QUESTIONS: (6 x 3 = 18)

21. What are the primary applications of PVSYST, RETScreen, and eQUEST in energy systems analysis?
22. Illustrate the flow chart for a PVSYST project design.
23. Explain how do you simulate result for a project in eQuest.
24. Describe the features of sunny portal site for photovoltaics analysis as installer and owner.
25. Explain the five step Standard Analysis in RETScreen.
26. Describe RETScreen simulation software with its applications and functionalities.
27. Discuss the benefits of using PVsyst as energy tool.
28. Name any three array losses in PVSyst.
29. Write a note on the softwares used for solar panel installation in building.
30. Mention TWO array losses in PVSyst.

SECTION – C

ANSWER ANY TWO QUESTIONS: (2 x 6 = 12)

31. Write a brief note on the building energy simulation using eQuest software.
32. Develop a project in PVSYST variant and give a detailed report.
33. Explain the ways in which RETScreen facilitate the assessment of renewable energy project feasibility.
34. Expand HVAC and write a brief note on the methodology of eQuest Project.

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