QP CODE: 21101454

21101454

Reg No : .....

Name : .....

B.Voc Degree Examinations, JUNE 2021

Second Semester

B.Voc Renewable Energy Technology and Management

RETTS203 - PHOTOVOLTAIC MODULE INSTALLATION

2019 Admission Onwards

0647B209

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Write any two advantage of power generation from solar energy over wind energy.
2. How wavelength of light effects the power output of solar cell?
3. What are the nominal operating cell temperature conditions?
4. Draw the grid controlled inverter circuit.
5. Explain the importance of tracking in solar power production.
6. Mention the different developments found in grid-connected inverter technology.
7. Which type of cable is used in a single-phase inverter?
8. Give a brief description of the knowledge to be possed by a PV installer when consulting with the customer.
9. How the shading analysis points are recommended for a larger system?
10. Write any two data to be included in PV system checklist.
11. What are the different types of modules used?
12. What is voltage optimization?

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. How change in solar irradiance effect the parameters of a PV module?
14. How temperature of module rises in response to the increase in ambient temperature?

15. How bypass diode effect the electrical parameters of a PV module?

16. Define surge arresters, string fuses, string diodes and isolators.

17. Compare AC switch disconnector with DC main switch.

18. Explain the characteristics of solar panel in series connection.

19. What are the methods to reduce mutual shading losses in free standing PV arrays?

20. How the sizing of AC & DC main cable can be done?

21. Define and derive the expression for PR.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. Derive the efficiency of a solar cell. Explain the factors effecting the efficiency of solar cell.

23. Explain Grid-connected inverter, its wiring symbol and method of operation.

24. Explain a) Temporary shading b) Self shading c) Direct shading.

25. Explain the working of surge arresters in detail.

(2×15=30)