

Reg. No. :

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**Question Paper Code:U2404**

M.E. DEGREE EXAMINATION, APRIL 2024

Second Semester

Power Electronics and Drives

21PPE204–POWER CONVERTERS FOR RENEWABLE ENERGY SYSTEMS

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Explain the impact of different renewable energy sources with reference to global warming and climate change. CO1- U (20)  
Or  
(b) List the various techniques used to convert biomass energy. Explain any one of the technique in detail. CO1- U (20)
2. (a) Design solar PV pump and explain the accessories required. Also, justify the importance of implementing maximum power point tracking for the pump system. CO2- Ana (20)  
Or  
(b) Analyze the output characteristics of PV module during varying environmental condition. CO2-Ana (20)
3. (a) Analyze the different types of inverter in the grid connected PV system CO3- Ana (20)  
Or  
(b) Enlighten the need and advantage of PV diesel hybrid system and analyze its operation. CO3- Ana (20)
4. (a) Analyze the operation of different types of wind turbines CO4- Ana (20)  
Or  
(b) Analyze the operation of stand-alone wind diesel hybrid system CO4- Ana (20)

5. (a) Analyze the effect of voltage fluctuation on grid in the hybrid energy system CO5- Ana (20)

Or

(b) Analyze the power quality issue of the hybrid energy system CO5- Ana (20)