

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : U2503

M.E. DEGREE EXAMINATION, APRIL 2024

Second Semester

Power Electronics and Drives

21PPE203 – ELECTRIC VEHICLES AND ENERGY STORAGE

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Describe with the working of Hybrid Electric Vehicle with major components. CO1-App (20)
Or
(b) Explain the fundamentals of vehicle mechanism and compare the EV with internal combustion engine. CO1-App (20)
2. (a) Explain the Architecture of HEV's with necessary diagram. CO2-U (20)
Or
(b) Explain the fundamentals of Plug-in Hybrid Electric Vehicles (PHEV) with necessary diagram. CO2-U (20)
3. (a) Explain the four quadrant operation of DC/DC chopper based to control the DC drives CO3-U (20)
Or
(b) Discuss the motoring and braking operation of induction motor drive using V/F control. CO3-U (20)
4. (a) List the different types of batteries and compare the constructional difference. CO4-Ana (20)
Or
(b) List the various parameters of the battery and discuss how it influences the performance of the battery. CO4-Ana (20)

5. (a) Explain the fundamentals of hydrogen storage system with CO5-U (20)
necessary diagram

Or

(b) Draw and explain the Fuel Cell structure and its CO5-U (20)
characteristics.