Gayatri Vidya Parishad College of Engineering for Women (Autonomous)

Madhurawada, Visakhapatnam

I B.Tech. II Semester –Regular Examinations,June/July2025

Thermal & Hydro Prime Movers [24EEC11RC04]

Q. No.	Scheme of Evaluation	Marks allotted
1 a)	Valve timing diagram -1M Actual Valve timing diagram -1M Theoretical Valve timing diagram -1M Difference -4M	7
1 b)	Boiler accessories-2M Economizer -4M Diagram -1M	7
2a)	Power -2M Break power -2M Displacement =0.002095m^3 -2M D=L =0.1387m -1M	7
2b)	Any 7 comparisons -7M	7
3a)	Rankine cycle- fig - 1M Working -3M Derivation - 4M	7
3b)	Properties of steam from steam tables -1M Workdone -2M Change in Internal Energy -2M Heat supplied -2M	7
4a)	Schematic for ideal Rankine cycle -3M PV diagram -2M HS diagram -2M	7
4b)	Variables that affect the efficiency and output -1M Boiler Pressure -2M Superheating -2M Condenser Pressure -2M	7
5a)	Working -2M Diagram -1M T-S diagram -1M Effect -2M	6
5b)	T2=662.45k –1M T4=452.86k -1M Workdone of Compressor=362.45KJ -2M Workdone of Turbine=547.14KJ -2M Net workdone=Power Developed=184.69kw -2M	8
6a)	Classification -1M Open cycle gas turbine -2M Closed cycle gas turbine-2M	5

6b)	T2=500k -2M T4=750k -2M Max temperatureT3 =1251K -3M Power developed=300.3K -2M	9
7a)	Vane diagram -2M Inlet vane angle=37.52^{o} -2M Outlet vane angle=6.56^{o} -2M Work done=20.24kw -2M	8
7b)	Classification -3M Advantages -3M	6
8a)	Area of jet- 2M Force exerted on stationary vanes -3M Force exerted on moving vane -2M Workdone -1M	8
8b)	Components -3M Working -3M	6
9a)	Operating characteristic curves -2M Procedure -2M Importance -2M	6
9b)	Vane diagram-2M Velocity of jet=53.19m/s -1M Velocity of bucket=23.94m/s -1M Hydraulic efficiency=92.5% -2M Diameter of pelton wheel=1.52m -2M	8
10a)	Layout of hydraulic power plant -1M Various Elements -5M	6
10b)	Flow Velocity =7.517 m/s -1M Velocity of bucket=25.056m/s -1M Diameter of boss=2.233m -2M Discharge=210.87 m^3/sec -2M Hydraulic efficiency=92.5% -2M	8

Verified
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