



A. EN(M) 13-14

FOR EVALUATOR'S USE ONLY

Sub. Code : **56**

Optional Paper

Mechanical Engineering : Paper-II

Time : 3 Hours / Maximum Marks : 200 / Total Pages : 32

Evaluation Table												(For Evaluator's Use Only)		
PART-A				PART-B				PART-C				Grand Total		
QN	E-1	E-2	AC	QN	E-1	E-2	AC	QN	E-1	E-2	AC	PART-A		
1				21				33				PART-B		
2				22				34				PART-C		
3				23				35				Total		
4				24				36				(-) Marks		
5				25				37				Final Total		
6				26				38				Marks in Words		
7				27				39						
8				28										
9				29										
10				30							Remarks of Evaluator/Chief Evaluator			
11				31										
12				32										
13														
14														
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16														
17														
18											Remarks of Scrutiniser			
19														
20														
Total														
Evalu ator's Sign														



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4 When the work done by the system is considered positive in a thermodynamic process ?

5 What is critical thickness of insulation ?

6 State Stefan-Boltzmann law.



7 What is a gray body ?

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8 What do you understand by the fouling factor ?

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9 A small plastic boat loaded with pieces of steel rods is floating in a bath tub. If the cargo is dumped into the water, allowing the boat to float empty. What will happen to water level in bath tub ?

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10 Define Newtonian fluid.

11 What is meant by cavitation ?

12 Define one (1) tonne of refrigeration.



13 Explain the term "dry compression" used in vapor compression refrigeration cycle.

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14 Define specific humidity.

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15 What is the purpose of supercharging in IC engines ?

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16 Name the principle methods of steam turbine governing.

17 State major applications of gas turbines.

18 What is the function of surge tank in a hydro power plant ?



PART - B

Marks : 60

Note : Attempt all the **twelve** questions. Each question carries **5** marks. Answer should not exceed **50** words.

21 Describe internally, externally and total reversible process.

22 List major differences between an Otto and a Diesel cycle.

19 Classify pulverised fuel burners.

20 What is the function of reflector in a nuclear reactor ?

In a counter flow heat exchanger, hot fluid enters at 60°C and cold fluid leaves at 30°C . Mass flow rate of the hot fluid is 1 kg/sec. and that of the cold fluid is 2 kg/sec. Specific heat of the hot fluid is $10 \text{ kJ/kg}\cdot\text{K}$ and that of cold fluid is $5 \text{ kJ/kg}\cdot\text{K}$. What will be the Log Mean Temperature Difference (LMTD) for the heat exchanger ?

24 What is the difference between natural and forced convection ?

29 What is detonation in SI engines ? List any two factors causing the detonation.

30 Explain the effect of intercooler in gas turbine.

31 Why superheating is essential in steam power plant ?

32 Explain briefly hydrograph.

Note : Attempt any 5 questions. Each question carries 20 marks. Answer should not exceed 200 words.

33 Derive expression for Air-standard efficiency of Otto cycle.





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37 Describe vapour absorption cycle.

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