SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583
QUESTION BANK (DESCRIPTIVE)

Subject with Code : Mechanical Engineering (18ME0346) **Course & Branch**: B.Tech - CE

Year &Sem: II-B.Tech& II-Sem **Regulation:** R18

		UNIT –I	
1	(a)	Define Entropy	5 M
	(b)	Define the following terms i)Ideal Gas (ii) Real Gas	5 M
2	(a)	Express the Ideal Gas Equation	5 M
	(b)	Express the Vander walls Equation	5 M
3		Explain about Efficiency of Carnot Cycle with PV Diagram	10M
4		Illustrate the analysis of Otto Cycle Efficiency	10 M
5		Solve the efficiency of Diesel cycle using PV diagram	10 M
6	(a)	Explain in detail about different process in Carnot Cycle	5 M
	(b)	List & Explain the different types of process in Diesel Cycle	5 M
7		A Diesel engine has a compression ratio of 14 and cut-off takes place at 6% of the stroke. Find the air standard efficiency	10 M
8		In an air standard diesel cycle, the compression ratio is 16 and the beginning of isentropic compression the temperature is 15^0 C and the pressure is 0.1 MPa. Heat is added until the temperature at the end of the constant process is 1480^0C.Calculate i) The cut-off ratio ii)The Heat supplied per Kg of air iii) the Cycle efficiency iv) The Mean effective pressure	10 M
9		An engine working on the Otto Cycle is supplied with air at 0.1 MPa, 35^0C. The compression ratio is 8. Heat supplied is 2100 kJ/Kg. Calculate the maximum pressure and temperature of the cycle, the cycle efficiency and the mean effective pressure (For air, C_p=1.005, C_v=0.718 and R=0.287 kJ/Kg K)	10 M
10		An air standard dual cycle has a compression ratio of 16, and compression begins at 1 bar, 50^0C. The maximum pressure is 70 bar. The heat transferred to air at constant pressure is equal to that at constant volume. Estimate i) The pressure and temperature at the cardinal points of cycle ii) The cycle efficiency iii) The mean effective pressure of the cycle (For air, C_p=1.005, C_v=0.718 and R=0.287 kJ/Kg K)	10M
		UNIT –II	

1	(a)	What do you know about classification of Boilers? Discuss	5 M
	(b)	Write the essential factors required for a good steam boiler	5 M
2	(a)	Explain about different types of Steam Turbines	5 M
	(b)	What are the advantages of steam turbine over steam engines	5 M
3	(a)	Explain the term Gas turbine and its Classification	5 M
	(b)	What are the merits and demerits of Gas turbine with I.C engines	5 M
4		Examine about different types of strokes involved in four stroke engine	10 M
5	(a)	Explain the working of two stroke petrol engine with line diagram	5 M
	(b)	Discuss on different types of fuels used in Industry Application	5 M
6		Justify the working principle of CRDI engine with neat sketch	10 M
7	(a)	Explain the working of MPFI engine with a neat sketch	5 M
	(b)	What is a Hybrid Engines? Explain its Types	5 M
8		Explain the working of Reciprocating Pump with a neat sketch	10 M
9		Elaborate in detail about working of Centrifugal Pump with line diagram	10 M
10		Explain briefly about Hydraulic Turbines and its classifications	10 M
		UNIT –III	
1	(a)	What is Coefficient of Performance	5 M
	(b)	Define Heat Pump	5 M
2		Illustrate the different processes in Vapour compression Refrigeration System with PV diagram	10 M
3		What is meant by Vapour compression Refrigeration System? Explain its working with neat diagram	10 M
4		Examine the working of House Hold Refrigerator with line diagram	10 M
5		Explain briefly about Energy Efficiency Rating	10 M
6		Define Psychometry and Explain their Properties	10 M
7		What are the different types of Psychrometric Processes? Explain them with neat diagram	10 M
8		Discuss on working of window Air Conditioner with neat diagram	10 M
9	(a)	Explain the working of split air conditioner	5 M
	(b)	Write the advantages and Disadvantages of Split air conditioner	5 M
10		Explain in detail about Refrigerants and their impact on environment	10 M
		UNIT –IV	
1		What are the Mechanical Properties of Materials? Explain them in detail	10 M

2		What are the different types of alloys? Explain briefly about any two of them	10 M
3	(a)	Define Engineering Materials	5 M
	(b)	Classify the different types of Engineering Materials	5 M
4	(a)	Define power Transmission Devices?	5 M
	(b)	List out the factors for selection of Belt Drives	5 M
5		What are the different types of Belt drives? Explain them with neat diagram	10 M
6	(a)	Discuss in detail about Chain drive	5 M
	(b)	Define briefly about Rope drives	5 M
7	(a)	Explain in details about any one type of Friction clutches	5 M
	(b)	Define Friction Clutches? Classify them	5 M
8	(a)	Define Brakes and its Classification	5 M
	(b)	Discuss in detail about Single Plate clutch	5 M
9		Explain in details about different types of Gear Trains with neat sketch	10 M
10		Explain in details about types and applications of Brakes	10 M
		UNIT –V	
1.	(a)	Explain about Casting	5 M
	(b)	Discuss clearly about Sheet Metal Forming	5 M
2		Explain briefly about different types of Sheet Metal Cutting	10 M
3	(a)	Briefly discuss about soldering?	5 M
	(b)	What is mean by Brazing	5 M
4	(a)	What is mean by welding? Classify them	5 M
	(b)	Explain about Powder Metallurgy	5 M
5	(a)	Explain about Forging and their types	5 M
	(b)	Discuss about Principle of Rolling	5 M
6		Explain with the help of a neat layout about working of lathe Machine. List out the Operations performed on it	10 M
7		With a neat sketch, Explain the construction and working of Shaper Machine and its operations.	10 M
8		Discuss briefly about Milling with the help of line diagram and its operations	10 M
9	(a)	Explain in detail about Extrusion Process with neat sketch	5 M
	(b)	Discuss clearly about Metal Joining Process.	5 M
10	(a)	Explain in detail about CNC Machines	5 M
	(b)	Describe about Grinding Machine	5 M

SHORT ANSWERS QUESTIONS

	UNIT-I	
1	What is the difference between Ideal Gas & Real Gas	2M
2	Draw the PV diagram of Constant pressure Cycle	2M
3	Draw the PV diagram of Carnot Cycle	2M

4	Define compression ratio	2M
5	Write the formula for Mean effective pressure of Cycle	2M
	UNIT-II	
1	What is the difference between Boiler & Steam Turbine	2M
2	State the different strokes involved in 2 stroke engine	2M
3	What are the advantages of CRDI Engine	2M
4	Draw the line diagram of Reciprocating Pump	2M
5	What are the types of Hydraulic Turbines	2M
	UNIT-III	
1	What is the difference between Heat Engine & Heat Pump	2M
2	Draw the line diagram of Vapour Compression Refrigeration System	2M
3	What are the Psychometric Properties	2M
4	What is the difference between Window & Split air conditioner	2M
5	Define Refrigerant	2M
	UNIT-IV	
1	What is mean by Alloy	2M
2	What are the different types of Power Transmission devices	2M
3	What is the difference between Chain & Belt Drive	2M
4	What is the purpose of Clutch	2M
5	What are the different types of Brakes	2M
	UNIT-V	
1	What is mean by Casting	2M
2	What is the difference between Brazing & Soldering	2M
3	Define Forging	2M
4	What is the purpose of Milling Machine	2M
5	What are the uses of CNC Machines	2M

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