



ANJUMAN-I-ISLAM'S
KALSEKAR TECHNICAL CAMPUS, NEW PANVEL
 School of Engineering & Technology

DEPARTMENT OF MECHANICAL ENGINEERING

CLASS:- TEME-I&II	SEM: V
SUBJECT:- H.T	DATE: 24/08/17
DURATION:- 60 min.	MARKS: 20

CLASS TEST 01

Q.01 Attempt any two: (08 Marks)		Marks	CO
a)	Define thermal diffusivity and state its significance ?	04	CO2
b)	What is insulation and Derive critical thickness of insulation for sphere.	04	CO2
c)	What is Fourier (Fo) and Biot (Bi) number? What is physical significance of these numbers?	04	CO2
Q.02 Attempt any two: (12 Marks)			
a)	Two long rods of same diameter, one made of brass ($k=85\text{w/m}^0\text{c}$) and other made of copper ($k=375\text{w/ m}^0\text{c}$) have one of their ends inserted into the furnace. Both of the rods exposed to the same environment. At a distance 105mm away from the furnace end, the temperature of the brass rod is 120^0c .At what distance from the furnace end the same temperature would be reached in the copper rod?	06	CO2
b)	A standard cast iron pipe inside diameter 50 mm and outside diameter 55 mm is insulated with magnesium insulation ($k =0.02 \text{ w/mk}$). Temperature at the interface between pipe and insulation is 300^0c . The allowable heat loss through the pipe is 600 w/m length of pipe and for safety the temperature of outside surface of insulation should not exceed 100^0c . Determine 1. Minimum thickness of insulation required 2. Temperature of inside surface of pipe assuming its thermal conductivity as 20 w/mk	06	CO2
c)	Develop an expression for the efficiency of a fin of uniform cross section when heat loss from the fin tip is considered negligible.	06	CO2

***** ALL THE BEST *****



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CLASS:-	SEM:-
SUBJECT:-	DATE:- xx / 09 / 2016
DURATION:- 60 min.	MARKS:- 20

CLASS TEST 01

Q.01 Attempt any two: (08 Marks)		marks	CO
a)		04	
b)		04	
c)		04	

Q.02 Attempt any two: (12 Marks)		marks	CO
a)		06	
b)		06	
c)		06	



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DEPARTMENT OF MECHANICAL ENGINEERING

REV:00	QUESTION PAPER CLASS TEST 01/ 02	EXM-04(a)	
CLASS:-TEME1&2		SEM:- V	
SUBJECT:-Internal Combustion Engines		DATE:- 22/08/2017	
DURATION:- 60 min.		MARKS:- 20	
Q.01 Attempt any two: (08 Marks)		Marks	CO
a)	Differentiate between SI and CI Engines.	04	1
b)	Explain working of Battery Ignition System.	04	2
c)	Explain working of MPFI fuel supply system.	04	5
Q.02 Attempt any one: (12 Marks)			
a)	In an Otto cycle pressure and temperature at the beginning of compression are 1 bar and 37 degree C. Calculate thermal efficiency if the pressure at the end of adiabatic compression is 15 bar. Peak temperature during cycle is 2000 degree K. Calculate heat supplied and work done per Kg of Air and pressure at the end of adiabatic expansion. Take $C_v=0.717$ KJ/KgK and adiabatic index =1.4.	12	1
b)	Determine size of fuel orifice to give $A/F=12$. Given: Throat Dia=3.5 cm, Suction at the venturi= 6.9 cm of Hg, Ambient Temperature = 25 degree C, Ambient Pressure = 1.013 bar, nozzle lip = 5mm, $C_{dv}= 0.9$, $C_{dn}=0.7$, Density of Fuel =760 Kg/m ³ .	12	5

Innovative Teaching - Exuberant Learning

Vision : To be the most sought after academic, research and practice based department of Mechanical Engineering that others would wish to emulate.



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DEPARTMENT OF MECHANICAL ENGINEERING

REV:00	QUESTION PAPER CLASS TEST 01	EXM-04(a)
CLASS:- TE/ME/1&2		SEM:- 5
SUBJECT:- PP3		DATE:- 2 / 08 / 2017
DURATION:- 60 min.		MARKS:- 20

Q.01 Attempt any TWO: (08 Marks)		Marks	CO
a)	Explain Transfer Lines	04	1
b)	Distinguish between Compound and Progressive die	04	2
c)	Explain 3-2-1 Principle	04	3
Q.02 Attempt any TWO: (12 Marks)			
a)	A circular cup is manufactured using deep drawing process has a height of 48mm and a diameter of 48mm. The corner radius is 2mm and work piece material is carbon steel which is 1mm thick. Determine 1. Blank size 2. Percentage deduction 3. Number of draws 4. Punch & die radius 5. Die clearance 6. Drawing force 7. Blank holding force Take yeild strength as 427N/mm ²	06	2
b)	Explain C clamp and Captive C clamp	06	3
c)	Discuss the steps of designing drill jig	06	3



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DEPARTMENT OF MECHANICAL ENGINEERING

REV:00	QUESTION PAPER CLASS TEST 01	EXM-04(a)
CLASS:- TE/ME/1&2		SEM:- 5
SUBJECT:- PP3		DATE:- 2 / 08 / 2017
DURATION:- 60 min.		MARKS:- 20

Q.01 Attempt any TWO: (08 Marks)		Marks	CO
a)	Explain Transfer Lines	04	1
b)	Distinguish between Compound and Progressive die	04	2
c)	Explain 3-2-1 Principle	04	3
Q.02 Attempt any TWO: (12 Marks)			
a)	A circular cup is manufactured using deep drawing process has a height of 48mm and a diameter of 48mm. The corner radius is 2mm and work piece material is carbon steel which is 1mm thick. Determine 1. Blank size 2. Percentage deduction 3. Number of draws 4. Punch & die radius 5. Die clearance 6. Drawing force 7. Blank holding force Take yeild strength as 427N/mm ²	06	2
b)	Explain C clamp and Captive C clamp	06	3
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CLASS:- TEME1 and TEME2	SEM:- V
SUBJECT:- TOM II	DATE:-23 / 08 / 2017
DURATION:-60 min.	MARKS:-20

CLASS TEST 01

Q.01 Attempt any two: (08 Marks)

a)	How does a clutch differ from that of a Brake?	C01	4
b)) What do you understand by dry clutch and wet clutch?	C01	4
c)	Explain Self locking and self energizing effect in Block brake?	C02	4

Q.02 Attempt any two: (12 Marks)

a)	A single plate clutch effective on both sides is required to transmit 25Kw at 3000 Rpm. Determine the outer and inner diameter of frictional surface if coeff of friction is 0.255, the ratio of radii is 1.25 and max pressure is not to exceed 0.1N/mm ² . Also find axial thrust to be provided by springs. Assume theory of uniform wear.	C01	6
b)	A band brake acts on 3/4 th of circumference of a drum of 450mm diameter which is keyed to the shaft . The band brake provides a braking torque of 225N-m. One end of the band is attached to a fulcrum pin of the lever and the other end to a pin 100mm from the fulcrum. If the operating force is applied at 500m from the fulcrum and coeff of friction is 0.25. Find the operating force when drum rotates in (a) Anticlockwise (b) Clockwise	C02	6
c)	A differential band brake has a drum with a diameter of 800 mm. The two ends of the band are fixed to the pins on the opposite sides of the fulcrum of the lever at distances of 40mm and 200mm from fulcrum. The angle of contact is 270 degree and the coeff of friction is 0.2 . Find braking torque when a force of 600N is applied to lever at a distance of 800mm from the fulcrum when a) clockwise b) anticlockwise rotation of drum	C02	6