SUBJECT CODE NO:- P-263
FACULTY OF ENGINEERING AND TECHNOLOGY
F. E. (All) (CGPA) Examination May/June 2017
Basic Mechanical Engineering
(Revised)

[Time: Three Hours]   [Max.Marks:80]

Please check whether you have got the right question paper.

N.B
i) Q.No.1 and Q.No.6 are compulsory.
ii) Attempt any two questions from the remaining questions in each section A & B
iii) Assume suitable data if necessary and mention it clearly .
iv) Figure to right indicate full marks.   .

Section A

Q.1   Solve any five   10
a) Define Thermodynamics .
b) State Zeroth law of thermodynamics and give its application
c) Show constant pressure process on PV and TS plane
d) Write four application of compressed air
e) Define Boyle's law of ideal gases
f) Define intensive property
g) Define TDC & BDC
h) Define Refrigeration

Q.2   1) Define thermodynamic system. Explain different types of systems   08
      2) State & explain the modes of Heats Transfer   07

Q.3   a) Derive equation of state for an ideal gas.   08
      b) A certain gas occupies a volume of 0.3 m^3 at a pressure of 2 bars. The temperature of the gas at   07
         this state is 77°c .The gas undergoes a thermodynamic constant volume process until the pressure
         rises to 7 bars. Determine the temperature at the end of process ,work done, heat transfer, change
         in internal energy change in enthalpy and change in entropy . Cv=0.712 KJ/Kg K,   R= 0.287 KJ/ Kg
         Also represent the process on PV and TS plane

Q.4   a) Explain with neat sketch working of four stroke SI engine   08
      b) Explain with the help of neat sketch the working of Domestic Refrigerator   07

Q.5   a) Explain Pdv work   08
      b) Write short note on reciprocating compressor   07

Section B

Q.6   Solve any five   10
a) Define shaft
b) State the function of flux in joining process
c) State the function of clutch
d) Define Tempering
e) Define composites
f) State function of cross slide
g) Stare working principle of drilling machine
h) Define soldering

Q.7   a) Explain with neat sketch working of internal expanding shoe brake   08
      b) If the gear ratio is 5 in a pair of spur gear with 100 teeth gear rotating at a speed of 500rpm. Find   07
         circular pitch, diametral pitch, pitch circle diameter of gear, pitch circle diameter of pinion ,velocity
         ratio and Centre distance

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Q.8   a) State and explain the selection criteria for Engineering Materials   08

          b) Explain with the help of neat sketch following operations performed on milling machine   07

             a) Plain milling   b) Gang milling   c) Angular milling   d) face milling

Q.9   a) Explain with neat sketch any four operations performed on lathe machine   08

          b) Explain with neat sketch sensitive drilling machine   07

Q. 10   a) Explain arc welding operation in detail   08

             b) Define forging ,explain press forging and Drop forging   07

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