SUBJECT CODE NO:- E-56
FACULTY OF ENGINEERING AND TECHNOLOGY
F.E.(All) (CGPA) Examination Nov/Dec 2017
Basic Mechanical Engineering
(REVISED)

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

Please check whether you have got the right question paper.

N.B
1) Q. no. 1 and Q. no. 6 are compulsory
2) Attempt any two questions from the remaining question in each section 'A' and 'B'
3) Assume suitable data if necessary and mentioned it clearly
4) Figure to right indicate full marks
5) Use of non- programmable calculator is allowed

Section A

Q.1   Attempt any five questions.   10
a) Define point and path function
b) Differentiate between open system and close system
c) Define entropy
d) Define sensible heat and latent heat
e) Show constant temperature process on PV and TS diagram
f) State different statements of first law of thermodynamics
g) State the function of spark plug and fuel injector
h) State similarities between heat and work

Q.2   a) State the various modes of heat transfer and explain them briefly   08
       b) Explain Pdv work in detail   07

Q.3   a) Explain the concept of constant pressure process on PV and TS diagram   08
       b) One kg of gas is confined to a constant volume tank. Initial pressure and volume are 4   07
       bar and $0.21m^3$ respectively. when a heat energy of 82KJ is supplied to the system the final temperature of the gas becomes 127^0c find
       1) Work done
       2) Change in internal energy
       3) Specific heat at constant volume. [Take R= 300Nm/kgK]

Q.4   a) Differentiate between two stroke and four stroke engine   07
       b) Explain construction and working of reciprocating air compressor. Also write it's   08
       applications.

Q.5   a) Write short note on forms of energy   07
       b) Explain Domestic refrigerator   08

2017

Section – B

Q.6   Solve <u>any five</u> Questions.   10
    a) State function of tailstock
    b) Differentiate between spur gear and Helicalgear
    c) Define brake write it's classification
    d) Enlist the different applications of non metals
    e) State the purpose of heat treatment process
    f) Define runner and riser
    g) State the working principle of milling machine
    h) Define shaft

Q.7   a) Explain with neat sketch the working principle of Double block brake .Also write it's   07
       applications
    b) A pair of spur gears consists of 25 teeth pinion meshing with gear of 100 teeth the   08
       module is 5mm. determine
       i) The circular pitch
       ii) The diametral pitch
       iii) The center distance
       iv) The pitch circle diameters of pinion & the gear
       v) The velocity ratio
       vi) The gear ratio

Q.8   a) Explain the following terms related to sand casting with neat sketch   08
       1) Pattern
       2) Mould cavity
       3) Parting line
       4) Sprue
    b) Explain with neat sketch Arc welding process   07

Q.9   a) Explain with neat sketch the various operations carried out on drilling machine   08
    b) Explain the surface grinding machine with neat sketch   07

Q.10   a) Write the short note on end milling and Gang milling   08
    b) Define forging. Explain working principle of press forging with neat sketch   07

2017