Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech.**
PCME4206

4th Semester Back Examination 2017-18
BASIC MANUFACTURING PROCESSES
BRANCH : AUTO, MECH
Time : 3 Hours
Max Marks : 70
Q.CODE : C1110

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Q1 **Answer the following questions :** **(2 x 10)**

a) What is the aspiration affect?
b) What is the primary function of a riser?
c) What is impregnation?
d) A cube and sphere made of cast iron(each of volume 1000 cc)were cast under identical conditions. The solidification time for cube is 2s.what is the solidification time for sphere?
e) What is upsetting?
f) What is alligatoring?
g) Why hot worked product is having poor surface finish than cold worked product?
h) Why carburized flame is preferable for machining high carbon steels?
i) Why in DCSP depth of penetration is more?
j) Write any two functions of flux.

Q2 **a)** What is a core in casting? **(2)**
b) Explain the procedure to make hollow casting with neat sketch? **(8)**

Q3 **a)** Explain different steps involved in investment casting. **(5)**
b) In a casting process liquid head is equal to height of the mould cavity. The filling time by using the bottom gating is t_1 and the filling time by using the top gating is t_2. Prove that $t_1 = 2t_2$, assume that neglecting the friction and filling time of a runner. **(5)**

Q4 **a)** The DC power source for arc welding has characteristic 4v+I=280, where V= voltage and I=current in amp. For maximum arc power at the electrode, what is the voltage? **(5)**
b) The permeability of molding sand was determined using a standard AFSsample by passing2000cc of air at a gauge pressure of 10g/cm^2. If the time taken to escape air was 1 min, what is the permeability number? **(5)**

Q5 **a)** Differentiate forward and backward extrusion. **(5)**
b) Explain with figure why hydrostatic extrusion is preferable for extruding semi brittle materials? **(5)**

Q6 **a)** Explain about thermitwelding with neat sketch. **(5)**

b) The thickness of a plate is reduced from 30mm to 10mm by successive cold rolling passes using identical rolls of diameter 600mm.assume that there is no change in width. If the coefficient of friction between the rolls and the work piece is 0.1, the minimum number of passes needed is. **(5)**

Q7 Explain about gas welding. **(10)**

Q8 **Write short answer on any TWO :** **(5 x 2)**

a) Ultra sonic welding

b) Wire drawing

c) Closed die forging

d) Pattern allowances