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

Total Number of Pages : 02 **B.Tech.**
PME4I102

4th Semester Regular / Back Examination 2017-18
BASIC MANUFACTURING PROCESS
BRANCH : MECH
Time : 3 Hours
Max Marks : 100
Q.CODE : C684

Answer Part-A which is compulsory and any four from Part-B.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Part – A (Answer all the questions)

Q1 **Answer the following questions:*multiple type or dash fill up type*** **(2 x 10)**

a) Ideal shape of sprue is ……
b) ……allowance is called as negative allowance
c) By increase in water content in moulding sand causes flowability to……..
d) By decrease in grain size causes permeability to……
e) A test specimen is stressed slightly beyond the yield point and then unloaded. Its yield strength……
f) Hot rolling of mild steel is carried out……recrystallization temperature
g) Ductility of a material with cold working……
h) In welding brass with oxyacetylene flame, the type of flame used is……
i) Temperature of a carburizing flame in gas welding is ……than that of neutral flame
j) With increasing joint thickness, the tensile strength of a brazed joint first ……then……..

Q2 **Answer the following questions: *Short answer type*** **(2 x 10)**

a) What is chill?
b) What is the function of a pattern?
c) What is duty cycle?
d) What is infiltration?
e) What is fullering?
f) What is misrun?
g) Why hot worked product is having poor surface finish than cold worked product?
h) What is recrystallization?
i) Why in DCRP depth of penetration is less?
j) Write any two functions of flux.

Part – B (Answer any four questions)

Q3 **a)** What is pattern allowance and explain about different allowances? **(10)**

b) A mould has down sprue whose length is 20cm and the cross sectional area at the base of the down sprue is 1 cm^2 .The down sprue feeds a horizontal runner leading into the mould cavity of volume1000 cm^3.find the time required to fill the mold cavity. **(5)**

Q4 **a)** Explain different steps involved in investment casting. **(10)**

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)**

Q5 **a)** Explain about electric arc welding. **(10)**

b) The voltage arc length characteristics of a DC arc is given by V=20+40L, where L=arc length in cm. The power source characteristics can be approximated by a straight line. Open circuit voltage is 80V and short circuit current is 1000amp. Find the optimum arc length in mm? **(5)**

Q6 **a)** Explain about different steps involved in powder metallurgy. **(10)**

b) Explain about hydrostatic extrusion. **(5)**

Q7 **a)** Explain about mold making with neat sketches. **(10)**

b) The thickness of a plate is reduced from 40mm to 20mm 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)**

Q8 **a)** Explain about TIG and MIG. **(10)**

b) A casting size 400x200x140mm solidifies in 20 min, then find solidification time for a casting size 400x200x35mm under similar conditions. **(5)**

Q9 **a)** Explain any two destructive testing methods to inspect cast and welded products. **(10)**

b) Explain pressure and velocity variation in rolling operation. **(5)**