Answer Exam Production of Aerospace Systems AE3211-II

September 7, 2015

1	B
2	C
3	B
4	A
5	B
6	A
7	C
8	C
9	C
10	C
11	A
12	D
13	B
14	D
15	B

16a. Metals: fluid with freely moving atoms, Polymers: viscous liquid with short (TS) or long (TP) molecules moving along each other

16b. Most polymers because viscosity (and gravity) is not sufficient for just pooring

16c. Knitlines occur when a part has multiple injection points; knitlines are lines where the flow fronts of two point come together; these are often weak points

16d. At least tooling materials which can sustain the high temperature easily (e.g. steel for aluminium castings; ceramics for steel castings)

17a. RTM, because one can define/create specific lengths or thickness in the tooling

17b. Viscosity too high because of the long molecules (even when softened)

17c. Fibre orientation; fibre volume content, pressure, flow length, temperature,….

17d. Working with prepregs like tape laying of manual lay-up processes

18a. + less stress concentrations; liquid tight joints; strong joints, smooth joint surface…
Extensive pre-treatment; difficult QC; no dismantling; …

18b. You need to have a sound and reliable interface between adherend and adhesive which is also durable (30-40 years of service)

18c. Largest shear strains at the edges; therefore also the largest shear stress.

19a. different materials; size; workshare; financial reasons; political reasons; …

19b. different materials; significant differences in shape or stiffness

19c. adding of materials (rivets or adhesives); local thickness increase or overlaps