

Q1.

Total: 20 marks

(a) (i)	
Assessment of fat reserves of an animal/ lean-to-fat ratio	4(2)
(ii)	
1. 3.0-3.5 2. 2.5-3.0	2
(iii)	
<i>Any one:</i> Low yield/ difficulty conceiving/ "milking off her back"/ calving difficulties/ small calf/ metabolic diseases/ irregular heat pattern	2(2)
(iv)	
<i>Any two:</i> Born early in calving season/ good health/ good conformation/ mother with good yield/ mother with good solids/ mother with good fertility/ mother with easy calving/ high EBI sire used	2

Q2.

Total: 20 marks

(a) (i)	
A: Jersey Reason: Lower yield/ higher solids B: Holstein or holstein cross or Montbéliarde Reason: Higher yield/ Lower solids C: Friesian or friesian cross or jersey cross or norwegian red Reason: Intermediate yield/ Intermediate solids	3(1 + 2)
(b)	
<i>At least one point from each</i> Age: 15 months/ 280-320 kg at mating/ target weight 500-580 kg at calving/ 24-month calving Condition: 2.8-3.2 for heat/ 3.2-3.4 at calving/ poor condition causes irregular heat/ calving difficulties or should not be put in calf	3(2)
(c)	
<i>Any one name and descriptive point (must match)</i> PastureBase: Allows you to track paddocks based on estimated grass cover Spring Rotation Planner: Divides you farm into weekly portions to plan grazing rotations Feed Wedge: Shows the feed available in paddocks over time/improves pasture management Platometer: Records grass in kgDM/ha Grasshopper: Rising platometer, measures grass and maps farm	2 + 3

Q3.

Total: 20 marks

(a)	
Identified stage of production cycle <i>Any one point from each heading</i>	2
Liquid milk production: Housing: During winter animals can be housed but must be moved to milking parlour/ animals must be watched during autumn calving Nutrition: High quality silage needed during winter to ensure animals still produce enough milk Production targets: Milk production is focused on quantity rather than quality/ milk solids less of a concern/ high milk yield/ production all year round/ produces milk for drinking	3(2)
Manufacturing milk production: Housing: Animals do not need to be milked during winter Nutrition: High fibre foods needed to increase milk solids Production targets: Quality of milk crucial/ no production during winter	3(2)
(b)	
<i>Any three:</i> Use breeds that have a high milk yield/ genetically improve herd through replacements/ increase the number of times milking each day/ only replace 17% of animals/ ensure animals are dried off/ ensure feeding is high enough approaching peak yield/ reseed grassland with more productive species/ use fertilisers and manures to improve production in pastures <i>Other suitable answers acceptable</i>	3(2)