Question 2 Solution

Product Name	Picture	Key Features	Disadvantages	Suggestions
Ossur Balance™ Knee		Possesses a four-bar geometric design which can be easily adjusted to optimize the required balance between stability and walking dynamics for each individual. Balance Knee facilitates easy kneeling. The design is easily adjustable without requiring disassembly. Mid-swing shortening allows the prosthesis to swing more easily through each step.	Can only support a single slow speed although it is marketed as the USP of the product. Although modelled for in-home use doesn't possess flexion resistance to assist easy sitting.	The weight of the knee is at 600 grams and this can be improved for a prosthetic knee without pneumatic or computerised assistance.
Ossur Balance™ Knee OFM1		It is a mechanical polycentric knee joint that is suitable for users with high safety requirements. The knee can be locked (e.g. when standing) to cater to new amputees and less mobile users. Ideal for first standing and walking exercises Flexion and extension can be released depending on the patient's progress More ground clearance for a safer and more confident gait Rates of flexion and extension can be adapted to the user	Is heavier than the conventional balance knee and also less mobile. Locking is the significant safety feature but knee design offers lesser flexibility and is more analogous to a rigid knee.	The servicing of the knee can be made simpler and more adjustments can be incorporated.

Ottobock 3R67™ Knee		Customised for children this knee offers easy movements, a large flexion angle and a high level of stability support. It is a hydraulic knee with powerful swing phase control and has a large flexion angle. It supports walking, running and outdoor mobility.	Supports limited body weight and is relatively bulky even for lightweight users. The maintenance and product life is again a worry with the product complexity.	As scaling down weight in hydraulic prosthetic knees is a harder goal, it can be improved to support heavier users to cater to a larger scope of users.
Plié® 3 Microprocessor Controlled Knee		This is a microprocessor polycentric knee with interchangeable battery feature. The battery cap is watertight and it offers features such as stance flexion resistance and an integrated alignment guide. Offers customised stumble recovery and also can endure slight water exposure.	Caters only to users with adequate hip strength in flexion and extension. As this is a computerised knee will involve a steep learning curve for the user and also increased servicing requirements which also can never be self tended to.	The water exposure limits can be increased and the reliance on hip strength can be reduced to cater to a wider user profile.
Ottobock C-Leg		The Cockpit app lets you operate the C-Leg directly using your smartphone – Android or iOS – and access information about the joint, such as the battery charge level. Makes precise real-time adjustments helping navigate ramps, stairs, and other rugged surfaces and even walking backwards. Offers an Intuitive Stance feature, which recognizes you have stopped moving and dampens the knee in a slightly flexed position thereby providing stance support.	Cost is very high and compatible only with custom feet which are again on the expensive side. It doesn't offer a replaceable battery feature though the battery life is around 40 hours.	A replaceable battery feature can be provided so that parallel charging of batteries can enable continuous usage.