Question number	Answer	Marks
1 (a)	aorta; pulmonary artery;	2
(b)	easier to change / replace / recharge / leakage / eq; ignore electric shock	1
(c)	(more) oxygen / oxygenated; (less) carbon dioxide; high(er) pressure; ignore colour	2
(d)	oxygen / glucose; respiration / energy / eq; muscles;	Max 2
(e)	shortage of hearts available / unwilling / few donors / eq; no tissue match / compatability / rejection / wrong blood group / eq; ignore cost / health / age issues	1
(f)	in ventricle; ignore between	1
(g)	small / eq; silent / quiet / less noise / eq; permanent / no need to replace / eq; light / eq;	Max 2

Total 11 Marks

Question number	Answer	Notes	Marks
2 (a)	removal of nucleus / without a nucleus / no nucleus / eq;	ignore without DNA	1
(b)	retina / fovea/ yellow spot / macula / macula lutea;	reject if in list eg. retina and iris	1
(c)	1. ss (aerobic) respiration; 2. ss energy / ATP; 3. ___erobic respiration; 4. ctic acid; 5. low pH / acidic; 6. enature enzymes;	5. ignore if linked to carbon dioxide	4
(d)	1. thin / one cell thick; 2. pores / gaps / permeable / eq; 3. short diffusion distance / faster diffusion / better diffusion / eq;	reject cell wall	2

(e)	1. not rejected / no need to match / for specific person; 2. no shortage of organs / less waiting time / better supply / no need of donors / organs always available; 3. free from infection / free from disease / ref. to age;		2
(f)	1. nucleus (from body cell) put into empty egg / enucleated egg; 2. electricity; 3. mitosis / cell division; 4. embryo; 5. uterus / womb; 6. surrogate mother;	ignore DNA removed	5

Total 15 marks

Question number	Answer	Notes	Marks
3 (a)	37;	units not required	1
(b)	1 (further) away from optimum temp; 2 low (kinetic) energy / less movement / eq; 3 few collisions / enzyme substrate complexes / eq;	allow converse for each marking point	max 2
(c)	1 denatured; 2 active site; 3 no longer fit / no longer bind / changes shape / deformed / eq:	ignore enzyme destroyed reject enzyme killed	2 max
(d)	1 (less) oxygen; 2 (less) glucose; 3 (less) (aerobic) respiration / anaerobic respiration; 4 lactic acid / acidic; 5 low pH; 6 inhibits enzymes / affect enzymes / eq;		4 max
		Total	9