

Question Number	Answer	Mark
1 (a)	Correct ref to: <ol style="list-style-type: none"> 1. flagellum / eq ; 2. overall shape e.g. streamlined / eq ; 3. fewer mitochondria / other organelles / eq ; 4. acrosome / eq ; 5. zona (pellucida) / jelly layer eq ; 6. cortical granules / eq ; 7. differences in food store types / eq ; 8. sperm cell has less cytoplasm / eq ; 	maximum (3)

Question Number	Answer	Mark
1 (b)	<ol style="list-style-type: none"> 1. enzyme {digest / eq}{ zona (pellucida) / eq} ; 2. idea that sperm can get through to egg {cell / nucleus / eq} ; 3. {contact with / receptor on} {zona pellucida / (glycoprotein) jelly coat / surface of ovum } ; 4. (causes) {acrosome / eq to {rupture / open / eq } ; 	maximum (2)

Question Number	Answer	Mark
1 (c)	<ol style="list-style-type: none"> 1. meiosis (II) is completed / eq ; 2. {male and female / eq } chromosomes come together / (both) nuclei fuse / eq ; 3. {cortical granules / enzymes/ chemicals} released (from cell surface membrane) / eq ; 4. {bind / eq } with { zona (pellucida) / eq } / {zona (pellucida) / eq } then {thickens /hardens / eq } ; 5. to form fertilisation membrane / to make cell impenetrable (to other sperm) / prevents polyspermy / egg cell membrane {changes its charge / becomes positive} / eq ; 	maximum (2)

Question Number	Answer	Mark
1 (d)(i)	<ol style="list-style-type: none"> 1. to produce a {zygote / eq} ; 2. to produce {original / full} complement of {DNA / chromosomes / genetic material } / diploid / 2n number / eq ; 3. to allow mixing of {genes / genetic material } / ref to { genetic variation / eq } ; 	maximum (2)

Question Number	Answer	Mark
1 (d)(ii)	(triploid) endosperm nucleus ;	(1)