

Question Number	Answer	Additional guidance	Mark
8(b)(i)	<p>An answer that includes the following points:</p> <p>Similarities</p> <ul style="list-style-type: none"> lining up of {chromosomes/ chromatids} on equator (of cell) (1) centromere bonds to spindle fibres (in metaphase) (1) <p>Differences (max 2):</p> <ul style="list-style-type: none"> two metaphase stages in meiosis whereas mitosis has one (1) {independent/random} assortment occurs (in metaphase I) in meiosis whereas it does not occur in mitosis (1) meiosis involves homologous pairs of chromosomes (in metaphase I) and sister chromatids (in metaphase II) whereas mitosis involves sister chromatids (1) 	<p>Full marks can only be awarded if there is a similarity in the answer</p> <p>ACCEPT centre of cell / metaphase plate</p> <p>ACCEPT {chromosomes/chromatids} bond to spindle fibres</p> <p>ACCEPT independent assortment only occurs in metaphase I in meiosis</p> <p>ACCEPT meiosis involves pairs of chromosomes whereas mitosis involves pairs of {sister chromatids/ single chromosomes}</p> <p>ACCEPT meiosis involves pairs of chromosomes whereas mitosis does not</p>	(3)

Question Number	Answer	Additional guidance	Mark
8(b)(ii)	<p>An explanation that includes four of the following points:</p> <ul style="list-style-type: none"> morula cells are totipotent whereas blastocyst cells are pluripotent (1) (specialisation / differentiation occurs because) gene(s) switched off (in blastocyst cells) (1) due to {epigenetic modification / DNA methylation / histone modification} (1) transcription of (active) genes to produce (active) mRNA / (active) mRNA translated at the ribosomes (1) the protein(s) produced {determine / change} cell {structure / function} (1) 	<p>ACCEPT cells become pluripotent</p> <p>ACCEPT differential gene expression occurs</p> <p>ACCEPT transcription and translation of (active)gene to produce protein</p>	(4)