

Question Number	Answer	Additional guidance	Mark
8(c)	<p>An explanation that includes the following points:</p> <ul style="list-style-type: none"> • (sister) chromatids cannot be separated / centromere cannot be split (1) • during anaphase (1) 	<p>accept chromosomes won't {be separated / move to poles of cell / move away from equator}</p> <p>accept cell remains in metaphase</p>	(2)

Question Number	Answer
*8(d)	<p>Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme.</p> <p>The indicative content below is not prescriptive and candidates are not required to include all the material indicated as relevant. Additional content included in the response must be scientific and relevant.</p> <ul style="list-style-type: none"> • increasing concentration of Paclitaxel {increases the duration of mitosis / slows mitosis} • quantitative comparison using information from table • increasing concentration of Paclitaxel increases the mitotic index • quantitative comparison using information from table • Paclitaxel causes the lowest increase in mass of tumour / lowest mass of tumour with paclitaxel • Paclitaxel was more effective than {placebo / drug X} • quantitative comparison using information from graph • error bars for paclitaxel do not overlap with {drug X / placebo} so there is a significant difference / error bars for drug X and placebo overlap so {the data may not be completely reliable / have similar effectiveness} / correct comment about size of error bars linked to repeatability of data • recognition that there is a significant difference between {placebo/drug X} and paclitaxel data • relevant comment about study design e.g. sample size, no information about age/sex etc of volunteers, no given duration in human lung study, only 21 days in mouse study • paclitaxel stopped division of cancerous cells / {fewer / decreased rate of} cancer cells being produced with paclitaxel • linkage between {increased mitotic index/ slower rate of mitosis / fewer cancer cells produced by mitosis} and smaller mass of tumour • explanation of how mitotic index is calculated (number of cells in mitosis ÷ total number of cells) • linkage between the increased duration of mitosis and the increased mitotic index e.g. more cells in prophase, metaphase, anaphase, telophase than in interphase • linkage between prevention of shortening of spindle fibres and increased duration of mitosis/mitotic index • resulting in, fewer cells in {anaphase/telophase/cytokinesis} than {prophase/metaphase}