End of Topic Test – Chapter 4: Critical Analysis — Mark Scheme

Total: 51 marks

This is a critical-analysis paper: most answers are extended-response. Marks below are indicative points that should be credited (B marks, awarded independently); any other well-reasoned, relevant point of equal quality should be credited equivalently.

1. Identifying evidence, reasoning and conclusions

(a) B2 (or B1+B1) the evidence is the poll of 500 residents finding 68% would cycle more if routes were safer. *[2]*

(b) B2 (or B1+B1) the reasoning: because a majority say they would cycle more with safer routes, providing safer routes (cycling lanes) is inferred to increase actual cycling levels, which is then linked to reduced congestion. *[2]*

(c) B2 (or B1+B1) conclusion: expanding cycling lanes will reduce traffic congestion. *[2]*

(d) B1 sample representativeness: 500 residents (self-selected respondents to a poll) may not represent the whole population/all road users. B1 assumption: stated intention ("would cycle more") does not guarantee actual behaviour change. B1 logical leap: even if more people cycle, this does not automatically prove congestion will fall (does not account for scale of change, other traffic, induced demand, etc.). *[3]*

2. Evaluating claims about exercise and wellbeing

(a) B1 the government statement shows large-scale investment (1,100+ facilities) explicitly aimed at getting people active and improving wellbeing – the same outcome the newspaper claims. B1 this gives some authoritative backing/scale to the idea that facilities investment is linked to health improvement. B1 caveat: it shows *intent and investment*, not proof that health actually improves as a result. *[3]*

(b) B1 the HFE review states evidence for exercise-referral schemes is "mixed". B1 it reports only "small improvements" in some studies, which contradicts the newspaper's stronger claim of a "significant" improvement. B1 this introduces uncertainty about the size/reliability of any effect. B1 conclusion: it weakens confidence that facility-building alone causes meaningful health gains. *[4]*

(c) B1 balances both sources: the government quotation shows intent/scale but no proven outcome; the HFE quotation shows real-world evidence is inconsistent and modest. B1 concludes the newspaper's claim of a "significant" improvement is an overstatement not fully supported by the evidence provided. B1 quality/clarity of the overall evaluation, referencing both sources explicitly. *[3]*

3. Interpreting claims about crime trends

(a) B1 the headline is based on a single year's change in *police-recorded* crime, which is a short-term fluctuation compared with the multi-decade view in the chart. B1 police-recorded figures can rise due to changes in reporting/recording practices, not just a real change in crime levels. B1 the chart shows theft has fallen sharply overall since a 1990s peak (roughly 8–9 million to around 2 million), so even with a recent uptick, levels remain far below historic highs – "wave" language exaggerates the scale of the change. *[3]*

(b) B1 the long-term data shows crime has fallen sharply since the 1990s, shown clearly by the declining trend in the chart. B1 this suggests any recent one-year rise is small relative to the much larger long-term fall, so does not constitute a genuine reversal or "wave". B1 conclusion: describing the current situation as a crime wave is not well supported when the full time series is considered. *[3]*

(c) B1 a reasonable suggestion (e.g. current absolute crime levels/numbers compared with the long-term average, London-specific victimisation survey data rather than just national figures, or a breakdown of which categories rose and whether recording practices changed). B2 developed justification of why this would help judge the claim (e.g. recorded crime alone cannot distinguish a true rise from a reporting-practice change). *[3]*

4. Sampling and bias

(a) B2 (or B1+B1) convenience sampling (also acceptable: opportunity/non-random sampling) – the teacher used her own accessible class rather than selecting randomly from the school. *[2]*

(b) B1 Year 13 students may hold different views on a phone ban than other year groups (age-related bias). B1 all 30 are from one class/teacher, so may share similar characteristics, friendship groups or attitudes, reducing representativeness of the whole school. B1 (third, credit if two are not fully developed) the small sample size (30) limits how confidently results generalise. *[3]*

(c) B1 a more appropriate method, e.g. stratified random sampling across all year groups (proportional to year-group size). B1 how it would be implemented (random selection of students within each year group using a sampling frame/random numbers). B1 why it is better (ensures all year groups are represented proportionally, reducing bias and improving generalisability to the whole school). *[3]*

5. Correlation and causation

(a) B2 (or B1+B1) correlation means there is a statistical association between two variables (social media use and anxiety) – as one tends to increase, so does the other – but this alone does not establish that one causes the other. *[2]*

(b) B1 there may be a confounding (third) variable – e.g. underlying stress, life circumstances, or sleep – causing both higher social media use and higher anxiety. B1 reverse causality is possible: people who are already more anxious may turn to social media more, rather than social media causing the anxiety. B1 correlation alone cannot distinguish between these explanations and true causation. *[3]*

(c) B2 (or B1+B1) a suitable suggestion, e.g. a controlled/longitudinal experiment that tracks the same individuals over time as their social media use changes (or a randomised controlled trial reducing usage for one group), to see whether anxiety changes as a result. *[2]*

6. Reasoning flaws: electric scooters and pollution

(a) B1 the article treats "no direct exhaust emissions" as equivalent to "environmentally friendly", ignoring the full lifecycle (manufacturing, electricity source for charging, disposal). B1 market growth figures are used as if they were evidence of an environmental benefit, but growth in usage does not itself prove reduced pollution. B1 vague/unquantified claims ("fuelled by environmental concerns") are presented as supporting evidence rather than being substantiated. *[3]*

(b) B1 alternative explanation 1, e.g. increased pollution could come from a general rise in overall traffic/other vehicles, unrelated to scooters. B1 alternative explanation 2, e.g. increased industrial activity, urbanisation, or population growth. B1 explanation clearly linked back to why this would affect measured pollution levels independent of scooters. *[3]*

(c) B1 the quotation shows that a scooter's true environmental impact depends on manufacturing, charging source and lifespan – factors the newspaper's claim ignores. B1 this challenges the newspaper's implied blanket conclusion that scooters reduce pollution, showing the real picture is more nuanced and could, in some cases, be worse than assumed. *[2]*