1.

Instructions: Use Resources A–C. Interpret the spatial evidence without drawing a map. Show calculations. Distinguish evidence from assumptions. More than one planning decision can be justified if supported by the resources.

Resource A. Ulaanbaatar: spatial accessibility evidence

Area / corridor	Reported spatial characteristics
City centre, east–west corridor	Many residents, jobs and schools concentrate near Peace Avenue and the railway; hospitals are more centralised.
Northern fringe: Yargait / Sharga Morit	Some homes lie up to 2.0 km from the nearest bus stop along Sanzai Road.
Southwest: Khan-Uul, 10th and 12th khoroos	Relatively high population density; walking distances to bus stops can reach 2.5 km.
Southern Khan-Uul: 8th, 23rd and 24th khoroos	Highlighted as candidates where high population density overlaps with low job accessibility.
Outer neighbourhoods	Roads are less connected; radial routes favour travel toward the centre rather than suburb-to-suburb travel.

Resource B. Measured accessibility

Indicator	Reported result
Residents within 300 m of a bus stop	54.4%
Residents within 500 m of a bus stop	78.7%
Mean share of city jobs reachable by transit within 60 min at 08:00, planned timetable	44.85%
Same indicator, using observed operational bus speeds	16.98%

Resource C. Decision scenario

A city authority can finance one initial intervention. Option N: extend a low-capacity feeder route serving the northern fringe; Option SW: provide a feeder route serving the southwest of Khan-Uul; Option S: improve a connection to the main east–west network in southern Khan-Uul.

Source: World Bank (2024), Accessibility Analysis by Public Transport in Ulaanbaatar, pp. 2–3, 5, 12–13; underlying WorldPop 2020 and 2022 travel survey.

a) **Reconstruct the broad spatial pattern of population and opportunities from Resource A. State two linked features of the centre–periphery structure and explain one consequence for cross-town travel.**

Answer:

2p

b) **From Resource B calculate (i) the percentage-point difference between the populations within 300 m and 500 m of a bus stop and (ii) the relative percentage reduction in 60-minute job accessibility when operational speeds replace planned timetables. Show working.**

Answer:

2p

c) **Choose one intervention (N, SW or S). Defend your choice using two different spatial or population-related pieces of evidence from Resource A and a clear mechanism explaining how the intervention might improve access. State which planning objective you prioritise (equity or number of beneficiaries).**

Answer:

3p

d) A regional planner suggests that implementing Option SW without addressing the radial transport network structure will induce a "spatial mismatch" for peripheral workers during peak hours.
Using evidence from Resources A and B, explain the mechanism behind this spatial mismatch and evaluate why expanding feeder route coverage alone fails to guarantee an equivalent increase in actual job reachability.

Answer:

2p

e) **Identify one additional georeferenced dataset that would most improve the decision. Explain precisely how it would be used to compare the options.**

Answer:

1p