

Candidate Marks Report

Series : 6 2018

This candidate's script has been assessed using On-Screen Marking. The marks are therefore not shown on the script itself, but are summarised in the table below.

Centre No :	Assessment Code :	J384
Candidate No :	Component Code :	03
Candidate Name :		

Total Marks :

In the table below 'Total Mark' records the mark scored by this candidate.
'Max Mark' records the Maximum Mark available for the question.

Answer all the questions.

1 (a) Study Fig. 1 in the separate Resource Booklet, a GIS map of Rio de Janeiro.

(i) Identify one human feature of Rio de Janeiro shown on Fig. 1.

~~It is largely built up with motorways and main roads (such as the A11)~~
 There is an airport (on the ~~Ilha~~ ^{Ilha} da Governador) [1]

(ii) Identify one physical feature of Rio de Janeiro shown on Fig. 1.

It is coastal (with lagoons and islands) [1]

(iii) The city boundaries of Rio de Janeiro in 1900 and 2015 are outlined on Fig. 1.

Estimate the area of Rio de Janeiro in 1900 in km².

..... 10 km² [1]

(iv) Using Fig. 1, describe the location of Copacabana Beach.

Copacabana beach is located in South-East Rio de Janeiro, on the south coast. It was part of the ^{Rio} de Janeiro back in 1900, and is situated in the Copacabana area, just roughly 5km south of the centre of Rio de Janeiro (i.e. around Santa Teresã). The beach is just east of the Parque Nacional da Tijuca. [3]

(b) Study Fig. 2 in the separate Resource Booklet, photographs and reviews of three coastal areas in Rio de Janeiro.

State two human uses of Rio de Janeiro's coastal areas seen in Fig. 2.

- 1 They are used for leisure activities (such as beach football)
 - 2 They are used for mooring yachts
- [2]



(c) Study Fig. 3 in the separate Resource Booklet, beach management strategies used in Brazil.

450 metres of Copacabana Beach, in Rio de Janeiro, needs coastal management to avoid widespread coastal erosion.

(i) Calculate the cost of rock armour for Copacabana Beach.

£ 45000 [1]

(ii) Using your own understanding, suggest whether beach nourishment or rock armour would be most appropriate for coastlines with high levels of erosion by hydraulic action.

Rock armour
~~Beach nourishment~~ would be most appropriate. This is because
 the high levels of hydraulic action would ~~regularly~~ ^{cause erosion} cause erosion
 to remain happening even with beach nourishment, whereas
 rock armour is effective at absorbing wave energy, so [2]
 could effectively stop the effects of hydraulic action,
 and is longer lasting.



- (d)* Study Figs 3 and 4 in the separate Resource Booklet, beach management strategies used in Brazil and a sketch showing impacts of beach nourishment (beach replenishment) at Copacabana Beach.

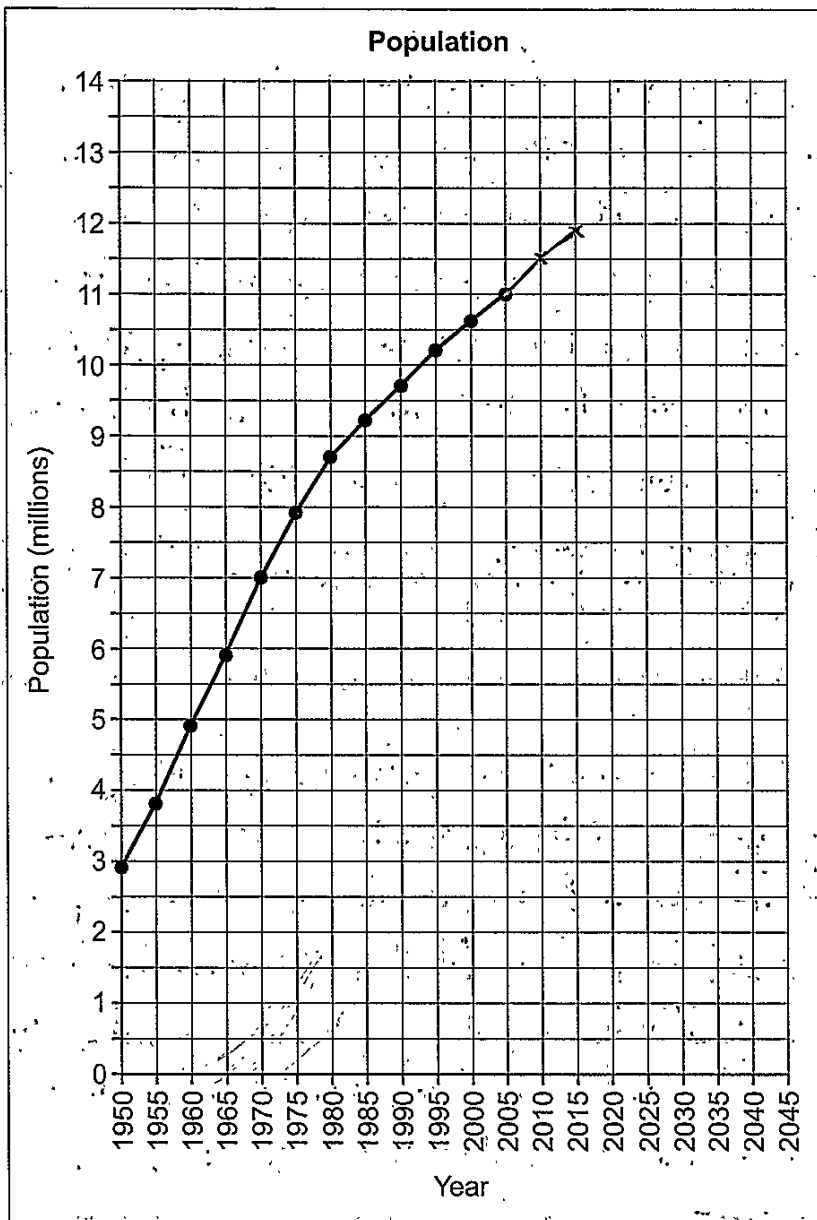
Using Figs 1, 2, 3 and 4 and your own understanding, explain how challenges in the city of Rio de Janeiro affect the coastal landscape.

~~The~~ Inadequate sewage disposal systems is negatively affecting coastal landscapes. Coastal areas such as the Marapendi Lagoon are polluted by sewage from the city's favelas (squatter settlements). These settlements, largely due to a lack of proper sanitation and sewage infrastructure, ~~are the sewage~~ ^{predominantly} of wealth, planning and government interference in these ~~poor~~ poor areas. This challenge causes waste to be drained straight down into local coastal areas, causing issues such as eutrophication, and which kill aquatic life and pollute the water. ~~Also~~ Similarly, ~~inadequate~~ inadequate access to rubbish disposal is also leading to lots of rubbish from particularly favelas ending up in beaches, such as ~~a~~ in Botafogo beach. The ^{substantially} increasing size of Rio, ~~is~~ ^{with} ~~highlighted~~ the city now stretching roughly 60 km West-to-East, is putting pressure on services, helping to cause the aforementioned challenges. The accumulation of rubbish affects the coastal landscape by making it very unappealing, and causing ^{bio-accumulation in} ^{high trophic levels} ~~fish~~ aquatic food chains, which is harmful. Nevertheless, the high popularity of Rio as a tourist destination, and the challenge of providing enough accommodation, particularly along popular beaches, has affected Rio's coastal landscape through encouraging the creation of new high-rise hotels/apartments along the shore and the positioning of businesses on the beach, ~~which~~ ^{some} such as along the Copacabana beach. This creates a more urban feel along ^{some} beaches, thus affecting the coastal landscape. Finally, ~~processes such as~~ ^{the challenges of} longshore drift and hydraulic action along Rio's coastal areas [12]

(Continues on
overly
document)



- 2 (a) The graph and table below show the population of Rio de Janeiro.



Year	Population (millions)
1950	2.9
1955	3.8
1960	4.9
1965	5.9
1970	7
1975	7.9
1980	8.7
1985	9.2
1990	9.7
1995	10.2
2000	10.6
2005	11
2010	11.5
2015	11.9

- (i) Complete the line graph for 2010 and 2015 using the table of data provided. [2]
- (ii) Predict the population of Rio de Janeiro in 2040, based on the current growth rate.

14 Million.....

[1]



- (b) Rio de Janeiro can be considered a world city.

Explain the characteristics of a world city.

A world city ~~is a city that is a part of~~ tends to have a very large population. They are often (but not always) the capital city of their country. World cities are normally located on coasts or rivers or another body of water. They tend to have a powerful financial sector and ~~also~~ have high levels of tourism, both national and international. World cities tend to have well-established further-education/research networks. They are often home to a major sports team, and have a diverse [4] population. Their population is often largely consisting of young adults.

- (c) Study Fig. 5 in the separate Resource Booklet, statistics for Rio de Janeiro and Brazil.

Using Fig. 5 and your own understanding, explain why Rio de Janeiro has experienced rapid urban growth.

Firstly, Rio has experienced rapid urban growth because it has a better quality of life than the majority of Brazil, encouraging ^{lots of} people to migrate there. The average monthly income per person in Rio is \$563, compared to \$375 for Brazil. Unemployment is at 6.8%, compared to 12.6% for the rest of the country. Rio has 2.56 doctors per 1000 people compared to Brazil's 1.89. All of these factors lead to an improved quality of life in Rio than the rest of Brazil, as ~~people~~ those in Rio have more money, better healthcare, etc. This then encourages rapid urbanisation to Rio, from people (particularly in poorer rural areas) seeking employment and better living standards/access to services. Rio has also experienced rapid urban growth because ~~mechanisation~~ increasing mechanisation in rural areas is leading to many becoming unemployed (the country has a high 12.6% unemployment rate, which would likely be higher in poor rural areas). This [6]

(continues in extension booklet)



- 3 Study Fig. 6 in the separate Resource Booklet, a map of Botafogo, a suburb of Rio de Janeiro; and Fig. 7, photographs taken in the Santa Marta squatter settlement (favela).

(a) (i) Use Fig. 6 to calculate the distance in km from (A) Santa Marta to (B) Botafogo beach.

1.2 km [1]

(ii) Santa Marta is one of the squatter settlements found in Rio de Janeiro. Using Figs 6 and 7, briefly explain **one** challenge people living in Santa Marta may face:

People living in Santa Marta face the challenge ^{that is living} on very steep land. This makes it difficult to construct buildings, with buildings ^{likely being very} vulnerable to landslides. It also isolates the area ^{as} from the rest of the city, ~~and~~ travelling in steep areas is ^{difficulty or alongside making it harder to install water/road infrastructure due to the uneven land.} [2]

(b) Using Figs 2, 6 and 7 in the separate Resource Booklet, and your own understanding, assess the contemporary challenges created by the inequality ^{within} Botafogo.

Inequality ~~in~~ Botafogo has caused the challenge of a deep divide between ^{access} to services, which is a major challenge.

Wealthier parts of Botafogo are situated on the flat land by the beach. This is ^a more ideal ^{area} for housing, ^{with better transport infrastructure} but has pushed poorer citizens into living on steeper land, such as how Santa Marta is on a hillside. These poorer citizens have less money, and so their hillside houses are vulnerable to landslides. This also causes poorer areas to lack ^{sufficient transport} access to ^{infrastructure (which is hard to build on hills) and} public spaces, with a large park ^{high quality} in the wealthier part of Botafogo, alongside lacking sanitation and water accessibility. This causes communities to have to share a water tap, and leads to water pollution of the coast due to inadequate waste disposal. ~~The~~ ~~Providing~~ ^{access to public spaces} [6]

~~for~~ ~~the~~ ~~water's~~ ~~pollution~~ (along the coast) are ^{reducing the ~~beach's~~ ^{all}} major challenges caused by wealth inequality in Botafogo. To conclude, the contemporary challenges in Botafogo (created by inequality) are ~~serious~~ very serious.



RIO DE JANEIRO IS BANKRUPT FOLLOWING 2016 OLYMPIC GAMES

Rio de Janeiro warns other Olympic host cities of the hidden costs of hosting the games as they struggle to pay for public services in the city. One resident said, "We hosted a fantastic party but now it's a desperate situation. We simply do not have enough money to pay all of our bills and this means that we are facing huge cuts".

Rio de Janeiro is facing many challenges, both physical and human, and, as outlined in the article above, the city now has a very limited budget.

Using the information in the separate Resource Booklet and your own understanding:


1. Examine whether you think that Rio de Janeiro should prioritise coastal management or improving the squatter settlements (favelas) over the next 10 years?
2. Suggest how your decision could lead to long-term sustainability for the city.

Rio de Janeiro should prioritise improving favelas over the next 10 years, over coastal management. ~~Coastal management~~ Rio's favelas are home to a large proportion of the ~~city's~~ ^{the city's} population, and with rapid population rise, ~~the~~ these squatter settlements are likely to expand. These areas, however, lack services, with communities (such as in Santa Marta) having to share water taps, limiting its availability, and - due to their ~~the~~ geographical position on steep hills - are often isolated from the city due to poor transport infrastructure. ~~More~~ These issues need to be addressed. By prioritising the improvement of ^{its} squatter settlements, those living in these areas will become more integrated into society and will experience better qualities of life. Although coastal management is important, as the beaches are a major leisure/ tourist attraction, bringing money into the city, problems such as



polluted water in Marapendi Lagoon and Botafogo beach, and
~~crime~~ crime in Copacabana Beach, which discourage tourism, largely
 stem from a lack of wealth / ~~sanitation~~ ^{sewage} infrastructure in
~~favelas~~ favelas. Thus, the government should prioritise improving favelas.

Improving favelas will lead to long-term sustainability for Rio
 for a variety of reasons. Firstly, it will help tackle crime, among
 the main factors limiting tourism (which brings in money, as
 tourists spend in local businesses), and a major social issue
 in Rio. The city suffers from high levels of crime, but [12]
 (continues in extension pages)

 Spelling, punctuation and grammar and the use of specialist terminology [3]

END OF QUESTION PAPER



ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

1d have caused the government to use beach nourishment
 in popular beaches (such as Copacabana beach) and
 widen ~~the~~ coastal road (to act as a barrier). This
 has ^{protected} ~~caused~~ coastal areas, ~~to~~ keeping ~~the~~ beaches
 large and full of sand, and has helped protect sea-side
 buildings during storms/very high tides. ~~It is~~
~~likely~~

2c causes many rural workers to have little choice but move
 to cities, such as Rio, in search of employment, as
 employment opportunities in rural areas are limited.
 This increases Rio's population. Finally, the fact that
 many younger people move/have moved to Rio in
 search of a better life leads to high birth rates,
 as these young adults have families, helping to contribute
 to rapid population growth.

4 This predominantly stems from ^{those in} the favelas. By improving the
 favelas, they ^{will} ~~can~~ ^{work} yield a better ^{quality} of life and
 will provide better ^{opportunities} to the residents, so fewer
 people will commit crimes, ^{reducing} this ^{grave} social issue, ensuring
 long-term ^{social and economic} sustainability. Next, by improving favelas (and thus
 their sewage infrastructure), ~~it~~ less sewage will be
 pumped into the city's beaches. This will improve the water



quality (achieving environmental sustainability), will encourage tourism (achieving economic sustainability) (this will happen because tourists like unpolluted water sources) and will help beaches become nice leisure spaces (achieving social sustainability). Finally, improving favelas will lead to a more educated ~~the~~ population of Rio (as more people ^{from favelas} will have received a good education*), so these people will be more likely to take part in higher skilled jobs, which generate more money for the Rio government, thus ensuring economic sustainability*². Therefore, improving favelas is important.

✎

*¹ (noting currently a school day in favelas is often only four hours, so improving these areas will lead to ^{an} improvement in the quality and duration of education)

*² Furthermore, in Medellin (Colombia) the government has recently invested in improving poorer areas, such as by creating new bus links, and this has yielded lower crime rates and ~~higher~~ an improvement in the quality of life.



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