



**Part 1**

Read **Passage A** carefully, and then answer **Questions 1** and **2** on the Question Paper.

**Passage A: Canal Holiday**

*Zelda and her husband, Bob, begin a week's holiday on a narrowboat.*

All I want from a holiday is a 5-star hotel, glitzy shops and top-class entertainment. When Bob announced a surprise 'treat' – a week on a canal boat in the country – I was taken aback. He declared that peace and quiet would do us good: I didn't think so.

We must have been the last people to take over a boat that Saturday. It took an age to decant everything from the car into this tube with windows. The boatyard owner said it was both cosy and luxurious. What nonsense! I need more than a shower and a microwave to feel pampered. Bob insisted that canal-boating was a popular pastime; some famous acting couple owned a boat they kept on this canal. More fool them. As I tried in vain to get a phone signal, I could hear the man telling Bob about 'watering up' and 'approaching locks with care' and 'thrusting the tiller' a particular way when reversing.

All this took too long. Bob kept plying the owner with questions. The old chap bemoaned various 21st century changes: the old canal maintenance yard next door was no longer used for repairs to lock-gates, instead housing some fancy artists' studios; the town which gave its name to the canal allowed modern music at its annual festival. Yawn. The light was fading, but there was no way I would spend our first night in that smelly boatyard next to a diesel pump. I told Bob we must leave.

There was now a nasty breeze. 'Isn't it bracing!' Bob declared as he neatly avoided colliding with a passing canoeist. Then my darling enthusiastically pointed out a graceful spire a couple of fields away, evidently of a church designed by a famous 19th century architect. Never mind the 19th century; I was longing for a decent supper, but the engine had to be kept on tick-over as fishermen sat along the towpath with fishing rods nearly touching the opposite bank. These were only lifted as our prow came level with them. Bob kept giving matey greetings, unaffected by their blank stares.

Thank goodness we came upon a village after two hours. Earlier Bob had told me of a restaurant in the area with a fine reputation. The village inn was certainly not in that league, though Bob did rave about his fish and chips. When we stumbled out afterwards, I nearly tripped over. I just don't understand how country people manage without street lighting. While Bob was fiddling in the dark trying to find the key, a man came past with several big dogs, none on leads. Now I have dirty paw marks all over my white trousers.

No sooner were we inside than there was this hammering on the roof, like machine gun fire. It was rain. Then the wind rose, shrieking through the trees. The boat pitched at its mooring and I feared the ropes would not hold. I made Bob go out and check the knots. Branches of trees on the opposite bank were bent double, their leaves snatched from them and tossed into the air as if by a manic juggler. The canal was an angry agitation.

Having only managed a few hours' sleep, I was roused early by a crowing cockerel. I opened the curtains to a transformation. The sun seemed to be smiling on the oak trees wearing their spring foliage like new coats, and feathery clouds were dabbed across the pale blue sky. A little distance off a heron stood motionless in the shallows with an air of grey, religious solemnity. Droplets of water hung from flower stems like tiny translucent pearls. Suddenly, the heron's head shot downward and he speared a fish which wriggled in his beak. Attractive as it was, I would have appreciated the sight more had I enjoyed eight hours' sleep.

Later as we were unravelling knots in the mooring ropes, our ears were assailed by a cacophony of sounds. Round a corner came an unruly bunch of teenagers bearing clipboards, pushing and shoving each other, and once even me, apparently conducting a survey for geography. So much for Bob's peace and quiet.

After several unsuccessful attempts, we manoeuvred away from the bank and headed further up the canal. I stayed inside, but heard Bob exchanging pleasantries with passers-by. When we stopped for coffee, he told me excitedly of a bird-watcher who claimed to have just spotted a lesser-ring-necked-green-headed-flycatcher, or some such thing. 'Maybe we'll see one!' he enthused. 'Let's hope not,' I thought. 'And this is only day two.'

## Part 2

Read **Passage B** carefully, and then answer **Question 3** on the Question Paper.

### Passage B: The Panama Canal

*At the official opening of the Panama Canal in 1914, ships sailed under the banner, 'The Land Divided: The World United'.*

A trip along the Panama Canal enables travellers to appreciate one of the greatest undertakings of all time, marvelling at engineering feats that some regard as the eighth wonder of the world.

A Spanish explorer found the Panama Isthmus in 1513, at its narrowest point about 50 kilometres wide, and 20 years later Charles I of Spain ordered a survey for a canal route. Then the only known international trade route between the Atlantic and Pacific Oceans was the treacherous journey around Cape Horn at the tip of South America.

More than three centuries later, the French began construction of a sea-level canal. However, there were three major problems: engineering, sanitation and organisation. It was costly and difficult to build a canal in the rain-soaked tropics through unstable mountains. Health risks in the mosquito-infested Panamanian jungle, principally malaria and yellow fever, cost thousands of lives. Excavation was conducted at such a steep angle that rain-induced landslides poured nearly as much material into the canal as had been removed. In nine years 22,000 lives had been lost and the company was bankrupt.

The US gained control and began working on a lock-based canal in 1904. Locks are water lifts, compartments with entrance and exit gates. On this canal, locks were needed to raise and then lower ships from sea level at both the Pacific and the Atlantic ends. It took a long time and many thousands of dollars to excavate these, as well as all the necessary cuttings. Railways had to be built to access all these different parts of the route.

Organisational problems were solved by using experienced army personnel as managers. A far-sighted sanitation officer saw the link between mosquitoes and disease. Ponds and swamps had to be drained, fumigation, mosquito netting and decent living quarters introduced. Up to 50,000 workers at a time carved through 82 kilometres of earth and granite. Industrialisation also provided advanced machinery for digging, and constructing the giant sets of locks. The gates at the Pacific end had to be 25 metres high to allow for the extreme tidal variation of that ocean. The Americans spent \$387 million on the project.

At the Atlantic end of the Canal is the huge 2.5 kilometres long Gatun Dam, the largest built at that time, which holds water back in Gatun Lake, 26 metres above sea level. This lake was the largest man-made lake in the world, and islands in it are actually the tops of mountains that were not flooded. Water for the locks is taken from the lake by opening and closing gates and valves. Gravity propels the water from the lake. The Gatun Dam also generates the electricity to run the motors which operate the Canal as well as the locomotives in charge of towing ships through the locks. Thus, the Panama Canal is self-sufficient.

Having passed through the Lake, ships arrive at the Culebra Cut, a 13 kilometres long excavated gorge through a mountain. This was probably the most challenging section of the entire project. Workers

laboured in extraordinarily high temperatures with drills, steam shovels and dynamite to shift vast quantities of material. Mud slides were common – one continued for years – pouring back millions of cubic yards into the excavation. The Cut was originally only 90 metres wide and, even with constant dredging, was insufficient to take modern ships. In the early 1970s, its width was increased by about 50%, and more recently the Canal Authority completed the monumental task of increasing the width to 192 metres in places.

The canal is 80 kilometres long and voyages take approximately nine hours. Ships sailing from New York to San Francisco through the Canal versus around Cape Horn save approximately 12,875 kilometres. A vessel carrying bananas from Ecuador to Europe saves around 8,046 kilometres. A key route wanted in the 1500s is still vital to world trade in the 21st century.

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