FINAL ENG for Science & Technolody

READING

Questions 1 – 12 refer to the following article

1 A huge whale with a plastic bucket stuck in its mouth, new-born dolphin calves being exposed to pollutants through their mother's contaminated milk, and seabirds feeding their chicks piece of plastic - these scenes from the BBC Blue Planet II documentary series were heart-breaking, and just a snapshot of the problems plastic pollution is causing in the oceans.

2 Fish, marine mammals and seabirds are being injured and killed by plastic pollution, and it is believed that 700 species could go extinct because of it. Current estimates suggest that at least 267 species worldwide have been affected, including 84% of sea turtle species, 44% of all seabird species and 43% of all marine mammal species — but there are probably many more. Deaths are chiefly caused by ingestion of plastics, starvation, suffocation, infection, drowning and entanglement.

3 In addition, one in three marine mammals have been found caught up in some type of marine litter - lost fishing gear, nets and plastic bags for example - and that over 90% of seabirds have pieces of plastic in their stomachs. Seabirds which feed from the surface of the ocean are especially likely to ingest plastics that floats, and then feed this to their chicks. One study found that 98% of chicks sampled contained plastics, and that the quantity of plastic being ingested was increasing over time.

4 Plastic pollution also affects deep sea creatures. Samples taken by scientists at the Scottish Association for Marine Science found that 48% of creatures had plastic in them, at a depth of 2,000 m. It was mostly polyethylene and polyesters from shopping bags and clothing - which make their way into water via washing machine waste water - as well as microplastics, small pieces of plastic that have degraded from larger pieces and the small plastic beads found in cleaning products.

5 Plastic has been slowly accumulating in the marine environment since the 1960s, to the point that we now have huge masses of plastic floating in the oceans and other waste plastics washing up on the beaches around the world. Much of these plastics are single-use from food packaging and bottles, carrier bags and other such products. Approximately 500 billion plastic bags are used worldwide per year — that's over 1 million a minute, but this is perhaps unsurprising when the average working life of a carrier bag is considered 15 minutes!

6 However, it is not just large pieces of plastic that are causing havoc with the marine environment. Household and cosmetic products are laced with microplastics designed to scrub and clean, and which are too small to be caught by water filtration systems. The microplastics enter water every time someone brushes their teeth or scrubs their face with products containing them.

7 These microplastics, along with nurdles - lentil sized pieces of plastic which are a by-product of various manufacturing products that end up in the oceans as a result of mis-handling or accidental spills - can be ingested by ocean wildlife and accumulate up the food chain, even reaching humans. It is also hypothesised that these smaller pieces of plastic can attract toxic chemicals released by industry and agriculture decades ago, the concentration of which also increases up the food chain.

8 Plastic is cheap and versatile, making it ideal for many applications, but many of its useful qualities have led to it becoming an environmental problem. The human population has developed a disposable lifestyle: it is estimated that 50% of plastics are used once before being thrown away. Plastic is a valuable resource but polluting the planet with it is unnecessary and unsustainable.

1. What is the passage mainly about?

A. The causes of extinction of marine animals

B. The advantages of different types of plastic

C. The effects of plastic pollution on the ocean wildlife

D. The solutions to the issue of plastic pollution in the ocean

2. What are paragraphs 2 and 3 mainly about?

A. Different types of marine garbage

B. Different species of marine creatures and seabirds

C. Deaths of marine creatures and seabirds

D. Negative impacts of plastic waste on marine creatures and seabirds

3. Which of the following words has the closest meaning to "accumulating" (paragraph 5, line 1)?

A. consuming B. gathering

C. emitting D. achieving

4. Which of the following words has the closest meaning to "havoc" (paragraph 6, line 1)?

A. disaster B. contamination

C. eruption D. explosion

5. What does "their" (paragraph 1, line 2) refer to?

A. of pollutants B. of new-born dolphin calves

C. of seabirds D. of the oceans

6. What does "it" (paragraph 8, line 1) refer to?

A. plastic B. lifestyle

C. food chain D. environmental problem

Part II. Identify whether the statements below (7- 12) are true or false. Put T for True and F for False

7. Plastic pollution is a possible cause of the extinction of marine animals. _____

8. Shopping bags and clothes are likely to float on the surface of the ocean, so they do not affect deep sea creatures. _____

9. Cleaning products contain microplastics which are harmful to the marine environment. _____

10. Microplastics and nurdles, which are often ingested by sea creatures, do not affect human food chain. _____

11. Plastics are inexpensive and applicable to multiple uses. _____

12. More than 50% of plastics are used several times before they are thrown away. _____

Questions 13 – 24 refer to the following article

1 In Eastport, a little coastal town on the easternmost point in Maine, USA. , different means of livelihood such as ground-fishing and sardine-processing are available. However, these jobs are not enough to strengthen the economy of this town. As such, residents hope that the sea (with the moon's help) can offer something profitable and a bit more predictable. The area has some of the greatest tidal variation in the country, rising and falling by roughly 20 feet (seven metres) on a reliable twice-a-day schedule. When it flows into and out of the region's many inlets, that current can turn a turbine.

2 Tidal-power technology is in its early stage, but a handful of speculative ventures are under way in Eastport. The first to test its prototype is the Ocean Renewable Power Company (ORPC), which in August launched a $2.5m tidal grid-compatible power system, the first in the United States. From the surface it looks like nothing more exciting than a static grey barge; but below are two spinning turbines, known as foils, which look like a whirling carbon-fibre double-helix. The project generates just enough power to run the control room and batteries for a coastguard vessel. If it can get a federal commercial permit, the company plans to unveil another $7m installation in 2011, powering 50-75 homes.

3 Smart it may be, but commercial success is a long way off. Tidal-power supporters praise its reliability and easiness on the eye——in contrast with the giant wind turbines. But there are limitations. Most of America's tidal-energy capacity is in Alaska, too far from big population centres. Industry analysts consider that, at maximum capacity, tidal power could generate 13 gigawatts nationwide, a small amount compared with the 35 gigawatts of wind generation that already exists.

4 Still, areas like Maine could benefit if the costs of the tidal-power project go down. A recent study shows that Maine could generate 250 megawatts from the tide, 100 of that in the Eastport area alone. This could be the biggest benefit to Eastport's economy. In an area where unemployment reaches 13% in some months, young people are moving away, replaced by seasonal part-timers. "If I wasn't working for this project, I wouldn't have a local job," says Ryan Beaumont, an ORPC employee who used to work in the sardine industry. The town is striving to make the project succeed: offering cheap office space and allowing use of its idle port and tugboats.

5 Despite local support, the tidal-energy project remains doubtful. Proposals made with similar fanfare have failed in the past. Even tidal power has its history of broken promises. In the 1930s President Franklin Roosevelt launched a federal project to harness tidal power with dams; it fell through a year later. Maybe this time will be different.

13. What is the passage mainly about?

A. Success of Tidal energy project in Eastport, Maine

B. Drawbacks of Tidal energy project in Eastport, Maine

C. Possibility of Tidal energy project in Eastport, Maine

D. History of Tidal energy project in Eastport, Maine

14. Which of the following statements is not the advantage of the tidal power?

A. It is reliable.

B. It does not disturb eyesight.

C. It can promote economy in Eastport, Maine.

D. It has greater capacity than wind power to provide electricity nationwide.

15. What does "which" (paragraph 2, line 5) refer to?

A. a stationary grey barge

B. a whirling carbon-fibre double-helix

C. two spinning turbines

D. the control room and batteries

16. What does "its" (paragraph 3, line 2) refer to?

A. of the eye

B. of reliability

C. of tidal power

D. of the commercial success

17. Which of the following words has the closest meaning to "unveil" (paragraph 2, line 7)?

A. reveal

B. conceal

C. rescue

D. explode

18. Which of the following words has the closest meaning to "harness" (p. 5, line 3)?

A. affect

B. release

C. utilize

D. devastate

Part II. Identify whether the statements below (19-24) are true or false. Put T for True and F for False

19. Maine is the state with the greatest potential for tidal-power capacity in the US. _____

20. The tidal-power project initiated in Eastport has become commercially successful. _____

21. The tidal- power generator consists of two main parts, the static barge and the two spinning turbines. _____

22. Eastport residents are supportive of the tidal- power project. _____

23. Employment opportunities in Eastport are quite limited, so young people are moving away. _____

24. President Franklin Roosevelt launched a successful federal tidal-energy project. _____

Questions 25 – 35 refer to the following article

1 Wildfires are getting larger, burning hotter and becoming increasingly unpredictable, devastating plant and animal species. Now, researchers are studying how these affect the smallest of forest organisms——including bacteria and fungi——and finding that some microbes develop after an intense wildfire.

2 " Fires typically don't destroy a microbial community——they change its composition," says Jessica Miesel, an ecosystem ecologist at Michigan State University in East Lansing. Some bacteria and fungi have a symbiotic relationship with plants, and this often determines which nutrients will be available to vegetation in an area. If fires destroy certain microbial communities, then the plants that rely on them might not be able to re-establish themselves in that ecosystem.

3 Researchers investigated wildfire consequences on bacterial and fungal communities in the boreal forests of two Canadian provinces. The team collected soil samples from 62 sites about a year after 50 of them had been damaged by fire in 2014. They found that several bacterial species in the Massilia and Arthrobacter genera, and some fungi in the Penicillium and Fusicladium genera, were more abundant after a wildfire than before——especially at sites that burnt with greater intensity. In addition, microbes might use fire to colonize new territory by hitching a ride on small particles of ash or dust in fumes of smoke. Some microbes are better adapted to break down organic matter that has been chemically altered by fire, and others might take advantage of newly opened ecological areas.

4 They are definitely getting caught up and transported in wildfire smoke, says Leda Kobziar, a fire ecologist at the University of Idaho in Moscow. In some cases, she suspects, nutrient-fixing bacteria caught in fumes might help to spur plant growth in faraway regions.

5 But this travel mode can be detrimental if the spores of plant pathogens——such as the fungus-like organism (Phytophthora ramorum) responsible for sudden oak death——are caught up in a blaze and transported to areas with healthy trees. Firefighters and other emergency personnel could also inhale potentially hazardous microbes and allergens, Kobziar says. However, these minuscule organisms are vital to the recovery of the forest ecosystem after the wildfire. They determine the first step on the road to recovery.

25. What is the passage mainly about?

A. Dangers of wildfires in an ecological system

B. Methods to recover an ecosystem from wildfires

C. Impacts of wildfires on the spread of microorganisms

D. Relationships between microbes and plants in a forest

26. What does "this" (paragraph 2, line 3) refer to?

A. Changing microbes' composition

B. Destroying a microbial community

C. Re-establishing plants in an ecosystem

D. Having a symbiotic relationship with plants

27. What does "this travel mode" (paragraph 5, line 1) refer to?

A. Travelling via soil

B. Growing into new organisms

C. Hitching small particles onto smoke

D. Spreading through organic matters

28. Which of the following words has the closest meaning to "abundant" (p. 3, line 5)?

A. plenty B. favorable

C. static D. slight

29. Which of the following words has the closest meaning to "minuscule" (p. 5, line 5)?

A. gigantic B. tiny

C. dramatic D. harmful

Part II: Identify whether the statements below are true or false. Put T for True and F for False

30. Intense wildfires normally destroy microbes in an ecosystem completely. _____
31. The research on the impacts of bacterial and fungal communities in boreal forests of two Canadian provinces was conducted in 2014. _____
32. Microorganisms can take advantage of fire to expand their territory. _____
33. Some nutrient-fixing bacteria can be carried by smoke to distant areas and encourage plant growth. _____
34. The spread of some microorganisms via wildfires can pose harmful effects on both plants and humans. _____
35. Phytophthora ramorum is harmless when spreading to other trees. _____

VOCABULARY

Part 1 Directions: Select the vocabulary for each question from questions 36 – 40.

Approximately there are 50 million tons of e-waste (electronic waste) around the world. This type of waste contains a(n) (36) _____ amount of metal. For years, recyclers have recovered usable parts, including metal, from e-waste while the unusable parts go to (37) _____. However, it has been unclear whether it is reasonable from an economic viewpoint. Researchers have recently estimated the expenses for extracting metals from e-waste, a practice known as "urban mining." They (38) _____ the costs for waste collection, labor, energy, material and transportation, as well as capital costs for the recyclers' equipment and buildings. The researchers (39) _____that it costs 13 times less to obtain metal from urban mining than from ores. Urban mining, therefore, is not only a productive way of (40) _____ e-waste but also a good way of conserving natural resources.

36. A. handling B. included C. considerable D. concluded E. landfills
37. A. handling B. included C. considerable D. concluded E. landfills
38. A. handling B. included C. considerable D. concluded E. landfills
39. A. handling B. included C. considerable D. concluded E. landfills
40. A. handling B. included C. considerable D. concluded E. landfills

Part 2 Directions: Choose the correct words to complete the dialogue below for questions 36 – 40.

Anne: There was shocking news on TV this morning. A North Korean nuclear power plant exploded last night and the (41) _____ killed 5 workers and injured over 20 people. There was also a big fire after the explosion.

Sarah: That was horrible! Have they managed to (42) _____ the fire and keep the situation under control yet?

Anne: The fire was put out around 3 a.m. this morning and authorities have been patrolling the area to make sure that safety (43) _____ are properly put in place.

Sarah: Have they discovered the cause of the explosion yet?

Anne: Not yet. They are still (44) _____ it and they hope to come up with some explanations soon.

Sarah: What really worries me is the leakage of (45) _____ waste from the badly damaged power plant. Such waste is really harmful to humans and the environment.

Anne: Yes, that's really scary.

41.	A. drought	B. blizzard	C. blast	D. avalanche
42.	A. extinguish	B. bombard	C. absorb	D. contaminate
43.	A. measures	B. trends	C. volumes	D. plantations
44.	A. warning	B. investigating	C. prompting	D. reviewing
45.	A. cooperative	B. disposable	C. immense	D. toxic