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**MAJLIS PEPERIKSAAN MALAYSIA**

**(MALAYSIAN EXAMINATIONS COUNCIL)**

**Instructions to candidates:**

**DO NOT OPEN THIS QUESTIONS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

*There are fifty questions in this test. For each question, choose the most appropriate answer.*

*Indicate your answer in the separate answer sheet given.*

*Read the instructions on the answer sheet carefully.*

*Attempt* **all** *questions.*

**This question paper consists of 18 printed pages and 2 blank pages.**

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Questions 1 to 15 are based on the following passage.

Feeling bogged down by routine? Getting bored with your lifestyle? Then join (1) \_\_\_\_\_\_ new 24-hour revolution. Flexibility is the order (2) \_\_\_\_\_\_ the day. You can buy your groceries (3) \_\_\_\_\_\_ midnight, book your holiday at 3 a.m., or (4) \_\_\_\_\_\_ a business plan at 5.00 a.m. As (5) \_\_\_\_\_\_ hours get longer, we are lured into (6) \_\_\_\_\_\_ unorthodox work and leisure patterns. But there (7) \_\_\_\_\_\_ a catch: a primitive timekeeper tucked deep (8) \_\_\_\_\_\_ our brains stubbornly defies these new trends. (9) \_\_\_\_\_\_ body clock not only dictates when we (10) \_\_\_\_\_, but also keeps every cell and tissue (11) \_\_\_\_\_\_ under a tight regime. What time we (12) \_\_\_\_\_\_ and sleep are all predetermined. Ignoring this (13) \_\_\_\_\_\_ time-piece is highly dangerous. By fighting our (14) \_\_\_\_\_\_ sleep tendencies we are wearing down our (15) \_\_\_\_\_\_ We may be triggering off a string of maladies ranging from niggling aches and pains to more sinister problems such as heart disease.

1. **A** that

**B** one

**C** the

**D** a

1. **A** of

**B** in

**C** on

**D** for

1. **A** at

**B** over

**C** from

**D** towards

1. **A** remember

**B** describe

**C** discuss

**D** open

1. **A** recreational

**B** productive

**C** company

**D** happy

1. **A** maintaining

**B** adopting

**C** talking

**D** using

1. **A** is

**B** was

**C** are

**D** were

1. **A** into

**B** down

**C** inside

**D** beyond

1. **A** Their

**B** Your

**C** Our

**D** Its

1. **A** think

**B** sleep

**C** function

**D** exercise

1. **A** growing

**B** working

**C** expanding

**D** multiplying

1. **A** eat

**B** play

**C** work

**D** awake

1. **A** mental

**B** accurate

**C** chemical

**D** biological

1. **A** flexible

**B** popular

**C** natural

**D** routine

1. **A** youth

**B** health

**C** energy

**D** fitness

Questions 16 to 18 are based on the following passage.

Wetlands are areas where water covers the soil. It may be wet all year or seasonally wet. Wetlands fall into four categories - marshes, swamps, bogs and fens. Marshes are dominated by soft-stemmed vegetation adapted to saturated soil. There are many kinds of marshes such as those ranging from coastal to inland, freshwater to saltwater. Marshes recharge groundwater supplies and moderate stream flow by providing water to streams. They also help to reduce damage caused by floods by slowing and storing flood water.

Swamps, on the other hand, are wetlands dominated by woody plants. They are also characterised by saturated soils. There are two major classes of swamp. They are shrub swamps and forested swamps. Swamps serve vital roles in flood protection and provide nutrient-rich soil for agriculture.

Bogs are freshwater wetlands characterised by spongy peat deposits and a floor covered by a thick carpet of sphagnum moss. The unique characteristics of bogs result in the presence of plant and animal communities that can adapt to low nutrient levels, waterlogged conditions, and acidic waters. Bogs serve an important ecological function in stopping overflowing water by absorbing ram.

Fens are peat-forming wetlands and are covered by grasses, sedges, rushes and wildflowers. Fens provide important benefits by preventing or reducing the risk of floods and improving water quality.

(Adapted from *the Internet*, 2002)

**Wetlands**

|  |  |  |
| --- | --- | --- |
| **(16) \_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Features** | **Functions** |
| Marshes | * Soft-steamed vegetation * **(17) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | * Recharge groundwater supply * Reduce damage caused by flood |

|  |  |  |
| --- | --- | --- |
| Swamps | * Woody plants * Saturated soil | * Protect from floods * Provide foods for animals and plants |

|  |  |  |
| --- | --- | --- |
| Bogs | * Sphagnum moss-covered floor * Spongy peat deposits | * Support special plant and anima communities * **(18) \_\_\_\_\_\_\_\_\_\_\_\_\_** |

|  |  |  |
| --- | --- | --- |
| Fens | * Grasses, sedges, rushes, and wildflowers * Peat soils | * Prevent or reduce risk of floods * improve water quality |

1. A Types

B Status

C Qualities

D Characteristics

1. A Everglades

B Saturated soil

C Saltwater marsh

D Freshwater marsh

1. A Prevent flooding

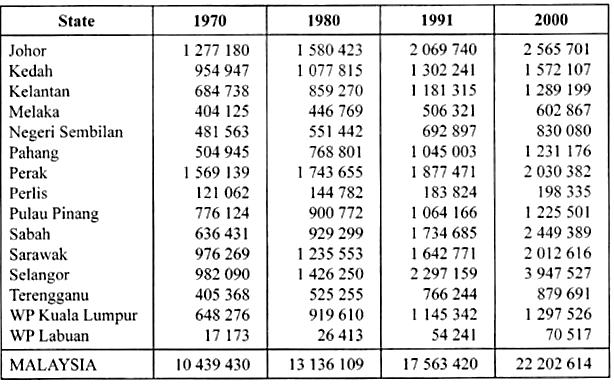
B Supply acidic waters

C Adapt to low nutrient levels

D Minimise waterlogged conditions

*Questions* **19** *to* **22** *are based on following table.*

**POPULATION OF MALAYSIA 1970-2000**



(Source: *Population and Housing Census of Malaysia, 2000,*

Department of Statistics, Malaysia)

1. Which of the following states registered the highest increase in population between 1970 and 1980?
2. Johor
3. Selangor
4. Sarawak
5. WP Kuala Lumpur
6. Which one of the following statements is true?
7. Perlis registered the lowest population in 1991.
8. WP Kuala Lumpur has the highest population in 2000.
9. The population of Selangor increased twofold in 2000.
10. Malaysia's population more than doubled in the last 30 years.
11. The main purpose of the table is to
12. identify population trends in Malaysia
13. show the distribution of population by state
14. highlight the concentration of population by state
15. compare the population growth within each state
16. Which of the following questions **cannot** be answered using information from the table?
17. What was Malaysia’s population in 2000?
18. When did the population in Kelantan reach a million?
19. Which states had more than a million people in 1980?
20. Why is there a sharp increase in the growth rate of population in Sabah?

*Questions* **23** *to* **29** *are based on the following passage.*

In the mid-I9th century, William Banting first popularised the low-carbohydrate weight-loss plan that has today grabbed the media's collective attention. Banting was a well-meaning London undertaker who grew so fat in middle age that he could not descend a staircase face first, for fear of being toppled by his huge belly.

His friend and physician, British surgeon William Harvey, prescribed a diet focused on meat, small amounts of fruit and lots of wine which helped Banting drop 35 pounds in 38 weeks. Delighted by this result, Banting printed the diet at his own expense and distributed 2500 free copies. The diet was so popular that when he died in 1878 nearly 60 000 additional copies had been sold at sixpence a piece. "Bantingism" became synonymous for dieting and "bant" common usage for losing weight.

Banting's plan has resurfaced in many forms over the years, more than a few of them best sellers. Most recently the Dr Atkins Diet Revolution - a 30old scheme - has caught on. Atkins's claim is that carbohydrates, not fat, are to blame for the ballooning of Americans. But this theory loses credibility when one considers that while Atkins's book was selling 10 million copies, obesity blossomed into a full-blown epidemic.

The discovery of the obesity gene in humans half a decade ago offered evidence that chronic weight gain is at its heart biological, the consequence of a mismatch between nature and nurture. Simplistic explanations, such as blaming obesity on a drop in fat consumption, ignore scientific reality. In countries like India and China, obesity was virtually unknown until the introduction of a high-fat, Western-style diet such as burgers and French fries.

One well-known reason for this is that dietary fat converts to body fat more efficiently than does protein or carbohydrate, but recently scientists have uncovered another equally important factor. Peter Havel, of the University of California, Davis, and Michael Schwartz, of the University of Washington, Seattle. are investigating the possibility that high levels of fat and fructose are confusing our brain chemistry, and thereby muting the signals that would normally tell us to put down the fork. These signals are produced by peptides, which are regulated by a number of hormones, namely insulin, 1eptin and ghrenlin. Under normal conditions these hormones help maintain a stable body weight by adjusting levels of the peptides that control eating. But a diet loaded with fat and fructose hampers the regulation of these hormones. Complicating matters still further, Schwartz says, is that the brain loses its ability to respond to these hormones as body fat increases - so the obese are doubly penalised.

Other researchers are finding evidence that constant exposure to fat and sugar can cause some humans to crave them as they do an addictive drug, A Princeton University psychologist recently showed that rats fed a high-sugar diet were, when the sugar was removed, thrown into a state of anxiety similar to that seen in withdrawal from morphine or nicotine. Sarah Leibowitz, a neurobiologist at Rockefeller University, believes that frequent exposure to fatty foods may configure the brain to crave still more fat. She has shown in animal studies that galanin, a brain peptide that simulates eating behaviour and decreases energy expenditure, increases when the animal eats a high-fat diet.

There are many factors contributing to the explosion of obesity in the United States and the world, but the radical changes in the composition of our food intake are first among them. While scientific work in this area is in its infancy, it is already clear that varying the amount of fat and other nutrients in our food affects brain chemistry by activating certain genes. This in tum directs our food 50 preferences. By submitting ourselves to a steady dose of highly processed, sweet, high-fat foods, we have unwittingly entered into a dangerous experiment, the long- term consequences of which are only now beginning to surface.

(Adapted from *Newsweek*, August 5, 2002)

1. What is the purpose of paragraphs 1 and 2?
2. To define what is "Bantingism"
3. To praise the effectiveness of "Bantingism"
4. To clarify the contents of low-carbohydrate diets
5. To explain the popularity of low-carbohydrate diets
6. The author says that Dr Atkins's theory *loses credibility* (line 15) because
7. Dr Atkins's theory is 30 years old
8. obesity is not caused by carbohydrates
9. scientists discovered that obesity is biological
10. there are more obese people since the publication of his book
11. The *scientific* reality mentioned in line 21 is
12. that human genes cause weight gain
13. that high fat consumption helps weight loss
14. the discovery of the obesity gene in humans
15. there is a mismatch between nature and nurture
16. The word *this* (line 24) refers to
17. one well-known reason
18. discovery of an important factor
19. dietary fat converts to body fat more efficiently
20. a high-fat Western-style diet which is causing obesity in India and China
21. Which of the following is **not** true?
22. Peptides control eating.
23. A high-fat diet dulls the brain.
24. Fat and fructose regulate hormones.
25. Insulin, leptin and ghrenlin regulate peptides.
26. Why were the rats *thrown into a state of anxiety*? (line 40)
27. The rats were not getting enough food.
28. The rats were dependent on the high-sugar diet.
29. Their peptides increased when their sugar diet was removed.
30. Their galanin levels had dropped, making them less energetic.
31. From the last paragraph, we can conclude that \_\_\_\_\_\_ is the primary cause of obesity.
32. diet
33. human genes
34. brain activity
35. food cravings

*Questions* **30** *to* **36** *are based on the following passage.*

Scientists in Texas have successfully cloned a cat, opening the way to replicating pets and other valued animals once the technique is perfected. The kitten, called CC (the old typist's abbreviation for carbon copy) and now almost two months old, appears healthy and energetic.

Out of 87 implanted cloned embryos, CC is the only one to survive - comparable to the success rate in sheep, mice, cows, goats and pigs, the scientists say. "If these odds can be shortened and CC remains in good health, pet cloning may one day be feasible," the scientists reported. The technique used to clone the cat may not be readily extendable to other animals "if our understanding of their reproductive processes is limited or if there are species-specific obstacles," the scientists say. The work in Texas was funded in part by a company that hopes to use the technology to provide commercial cloning of companion animals for pet owners.

The Texas A&M University announcement was greeted with a mixture of joy and disappointment by the Audubon Nature Institute in New Orleans, which has been trying hard to clone domestic cats so as to learn how to clone endangered felines. "It was only a matter of who was going to be the first to succeed in producing a cloned cat," said Philip Damiani, a staff scientist with the Institute. Damiani was involved in the first successful cloning of an endangered species, a gaur (a kind of wild cattle) in January 2001.

The Audubon Nature Institute, which is state-funded, has been doing similar experiments to those of their colleagues in Texas. "The significance of their breakthrough is that it now allows us to take this technology and apply it for the preservation of endangered species," Damiani said. "It proves that cloning technology can be applied not only to livestock but also to companion animals. Ultimately it will also be used for endangered species."

There may be a significant demand for commercial cloning of pets. Richard Denniston of Lazaron Biotechnologies said several hundred customers had "banked" the DNA of their animal companions with his company hoping that they can be cloned. "We have banked lots and lots of cells of cats as well as dogs, cattle, goats, horses, you name it. There are quite a number of people who are interested in doing this."

The Humane Society of the United States is opposed to the concept of cloning pets. "In the first place it is dangerous for the animals involved," said Brian Sodergren, who monitors the exploitation and abuse of companion animals for the society. "Take the cat that was cloned: The sheer amount of embryos it took is quite mind-boggling. Secondly, cloning adds needlessly to the overpopulation of pets in the United States. There are millions of dogs and cats in shelters waiting to be adopted, looking for responsible owners and loving homes. About half of them will be destroyed because there are not enough homes for them."

(Adapted from *National Geographic News*, February 14)

1. The word *replicating* (line 1) is closest in meaning to
2. imitating
3. multiplying
4. reproducing
5. copying
6. Cloning other animals is only possible if
7. there are more funds
8. carbon copy or CC remains healthy
9. species-specific obstacles are overcome
10. the success rate of cat cloning is improved
11. Audubon Nature Institute was disappointed by the Texas A&M announcement because
12. Texas A&M was the first to clone the cat
13. Texas A&M did not clone an endangered feline
14. Audubon Nature Institute was unable to clone an endangered species
15. Texas A&M managed to clone only one cat out of 87 cloned embryos
16. The experiments carried out by Audubon Nature Institute and Texas A&M differ in
17. area of the research
18. choice of animals used
19. the purpose of the research
20. source of funding for the research
21. I and II
22. I and IV
23. II and III
24. III and IV
25. Which of the following is the topic sentence of paragraph 5?
26. There may be a significant demand for commercial cloning of pets.
27. There are quite a number of people who are interested in doing this.
28. We have banked lots and lots of cells of cats as well as dogs, cattle, goats, horses, you name it.
29. Richard Denniston said several hundred customers had "banked" the DNA of their animal companions with his company hoping that they can be cloned.
30. The following are reasons for opposing pet cloning except
31. animals used for experiments are being put at risk
32. cloning increases the already large number of pets
33. there is a lack of control over research in pet cloning
34. there are enough animals in shelters for pet owners to adopt
35. The main intention of the writer in this article is to
36. inform readers about the cloning of a cat
37. argue for the commercial cloning of cats
38. discuss the advantages of cloning pets
39. oppose pet cloning in general

Questions 37 to 43 are based on the following passage.

*Mankind is running up a huge deficit with the Earth*. We are using 20 percent more natural resources than can be regenerated. If this pattern continues, man will need to colonise another two planets within 50 years to satisfy his wants, according to the *Living Planet Report 2002* released recently by the World Wide Fund for Nature (WWF). The report, based on scientific data from across the world, reveals that mankind has destroyed more than one-third of the natural world in the past 30 years. Unless man stops depleting the planet's resources, humanity will face a sharp drop in living standards by the middle of the century.

*The Living Planet Index* which is based on trends in populations of hundreds of species shows that current human plunder is outstripping Earth's capacity to support life. Using 1970 as a baseline year and giving it a value of 100, the index has dropped to a new low of around 65 in the space of a single generation.

The *Living Planet Report* is just one of many grim reports released recently in advance of the World Summit on Sustainable Development, which will be held in Johannesburg, South Africa.

The report showed that there are 2.2 billion more mouths to feed now than there were in 1972. The world's poor has doubled within 30 years to 307 million. About 1.2 billion live on less than US$l (RM3.80) a day. Another finding is that 15% of the world's rich account for 56% of global consumption. There are 815 million people who are undernourished; the numbers are declining in Asia but growing in Africa. Besides malnutrition, poor environmental quality causes 25% of all preventable diseases.

Half of all the world's rivers are depleted and polluted. Over a billion people do not get clean water. Diseases caused by unsafe water kill 3 million people annually. By 2025, two-thirds of the world could live in water-stressed areas. Presently, a quarter of all fisheries are depleted. North Atlantic cod stocks have decreased from 264000 tonnes in 1970 to under 60 000 tonnes in 1995. Only 1 % of the world's oceans are protected reserve. As much as 27% of coral reefs have been destroyed and another 32% face destruction within 30 years.

The forests are also not spared. 14.6 million hectares of forests are felled each year. Forest cover has dwindled by 2.4% since 1990, and 12% since the 1970s. Only 2% of the world's forests had been certified as sustainably managed, mostly in North America and Europe. In Asia, for example, shrimp farms have taken over half the areas of mangrove swamps. Much of the forests have been cleared for agricultural land and of the more than 100 000 species in the world, 800 are already extinct and over 11 000 species are being threatened by timber logging, clearing of land for agriculture and the urbanisation of rural areas. Many species of birds and smaller animals are now being threatened with this depletion of our forest reserves. The greatest threat today is to the tiger, which is facing near extinction. The tiger population fell from 30 000 in 1980 to less than half of it now. In Peninsula Malaysia there were more than 200 tigers at last count. Today even that number is dwindling. Black rhino numbers also dropped from 65 000 to 3100 within 30 years.

(Adapted from *The Star,* August 6, 2002)

1. The phrase mankind is running up a huge deficit with the Earth means
2. man owes the Earth in terms of natural resources
3. man is using more natural resources than can be generated
4. man's progress on Earth is dependent on its natural resources
5. man will face a drop in living standard if development is unchecked
6. The contents of the Living Planet Report can best be described as
7. dull
8. biased
9. troubling
10. insensitive
11. Which of the following is not mentioned in paragraph 4?
12. There is an unequal global consumption.
13. The number of poor people has increased sharply.
14. There is a dramatic increase in the world's population.
15. The number of Asians suffering from malnutrition has increased.
16. The main idea of paragraph 5 is
17. global coral reefs are at risk
18. the world's fish supply is being depleted
19. our water resources and marine life are being destroyed
20. there is an insufficient supply of safe drinking water, leading to diseases
21. The word species in line 35 refers to
22. birds
23. forests
24. shrimps
25. mangroves
26. The writer brings in the example of the decline of the tiger to
27. highlight the problem of urbanisation
28. compare it with the extinction rate of the black rhino
29. inform readers of the need to protect certain species of animals
30. emphasise the relationship between animal extinction and deforestation
31. The main intention of the writer in this article is to
32. Inform readers of the importance of conservation
33. Explain the effects of overpopulation in urban areas
34. Caution readers about the depletion of our natural resources
35. Compare the consumption of resources between the rich and poor nations

*Questions* **44** *to* **50** *are based on the following passage.*

Biotechnology is transforming the world's food supply, or at least America's. US growers had already planted 76 million acres of genetically-modified (GM) crops as of 1999, and the number is rising fast. Experts predict that US farms will harvest more GM crops than conventional ones by the year 2020, and that virtually all non-wild plants will be genetically-modified by the end of the 5 century. Europeans, however, remain deeply suspicious of the whole trend. In France, "food security" ranks second only to unemployment as a public concern. Is such stiff resistance warranted? Does GM fanning pose real risks to health and the environment? No one denies that it could have downsides as well as advantages. But the evidence suggests that "Frankenfood" is less dangerous than most people realise.

Farmers have spent centuries cross-breeding crops - i.e. altering their DNA – to make them produce food that is better tasting or more abundant. Modem genetic science simply speeds up that process. Bioengineers are able to work with far greater precision than traditional plant breeders because they pinpoint the genes governing particular traits. Since genes are all made of the same stuff, useful ones can often be transferred between unrelated species. Thus, by transferring a gene that lets a soil-dwelling microbe make a natural pesticide into food crops, the plants will be able to fight off pests without causing harm to people or animals. A gene that lets dandelions produce vitamin A may be transferred to a rice plant, producing a more nutritious grain.

This form of agriculture is less than two decades old, but it has already spawned more than a dozen new crops. Most of today's GM plants are indistinguishable from conventional ones, except that they are more resilient and less disruptive to the environment. But innovations now in the works could directly affect health and nutrition worldwide.

While farmers have benefited from these innovations, the next generation of GM crops could directly affect consumers both rich and poor. With luck, nutritionally-enhanced rice will soon provide much-needed iron and vitamin A to underfed children in Africa, Asia and Latin America. New strains of cassava, a staple throughout much of the developing world, will harbour fewer of the cyanide-producing cells that make the root such an impractical food source. In the developed world, farm-raised salmon will grow to seven pounds in 18 months - half the time a conventional fish requires. GM potatoes will absorb less oil when they are fried, and the oil itself will be richer in healthful mono-unsaturated fatty acids. Researchers are also racing to grow foods that will vaccinate kids against various infectious diseases.

No one denies that all this gene shuffling could have risks as well as benefits, but researchers have yet to identify extreme or unmanageable hazards. One common concern is that proteins capable of triggering allergic reactions will show up in foods that do not normally contain them. This is not a small issue considering that one person in fifty suffers from food allergies. Fortunately, though, 90 percent of all food allergies are caused by only a handful of proteins found in nuts, wheat, milk, eggs and seafood. And if unknown allergens should surface in GM foods, researchers would spot many of them before they reached the market.

Consumer safety aside, some sceptics worry that GM crops will prove less ecologically friendly than they seem. One concern is that insects will develop resistance to the natural pesticide in the GM crops as we spread them through the environment. Another concern is that weeds will gain the survival advantage of GM crops, and it is also feared that crops designed to repel pests may prove toxic to other species as well.

All these issues will need to be followed closely as we modify plants for our own ends. This is new technology with which we have had limited experience, and we need to be cautious. The revolution has already begun. And though we may encounter resistant pests and an allergic consumer before it is over, it is worth remembering that none of these problems is unique to biotech farming. GM crops are not fundamentally different from conventional ones. They simply exhibit more of the qualities that make conventional crops valuable. GM foods may not reach many European tables next year. But as the promise of the new technology is realised, its allure will be harder and harder to resist.

(Adapted from *Newsweek Special Edition*, December 2000- February 2001)

1. Cross-breeding of crops in traditional farming was aimed at
2. fighting pests
3. increasing harvest
4. improving flavour
5. creating new varieties
6. I and II
7. I and IV
8. II and III
9. III and IV
10. In paragraph 3 one important difference between GM plants and conventional plants is that GM plants
11. are less tasty
12. are more nutritious
13. harm the environment
14. are more resistant to disease
15. The word *spawned* in paragraph 3 (line 23) means
16. grew
17. created
18. increased
19. improved
20. Paragraph 4 is mainly about how
21. children will benefit from GM crops
22. researchers are discovering new strains of crops
23. GM crops will benefit all consumers in the future
24. farmers will gain from the next generation of GM crops
25. All the following are possible adverse effects of GM crops except
26. GM crops destroy the environment
27. GM foods may contain proteins that trigger allergic reactions
28. insects may develop resistance to the natural pesticide in GM crops
29. the natural pesticide in GM crops may also be toxic to other species that feed on it
30. What point is the writer making in paragraph 5?
31. One person in fifty suffers from food allergies.
32. GM plants are indistinguishable from conventional plants.
33. One need not be too concerned about the risks of GM foods.
34. 90 percent of all food allergies are caused by a handful of proteins.
35. The writer's attitude towards GM foods can best be described as
36. apprehensive
37. enthusiastic
38. supportive
39. critical