



10. Combine the following clauses to form single sentences. (2×1=2 Marks)
- Raja was the owner of the apartment. He had two sets of keys to the apartment.
 - Some candidates finished all the questions in the online exam well ahead of time. They were given extra questions to answer.

PART – B

(5×16=80 Marks)

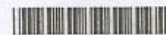
11. Answer both (i) and (ii)

- i) Read the following passage and answer the questions given below : (6)

- There are two types of diabetes, *insulin-dependent* and *non-insulin-dependent*. Between 90 – 95% of the estimated 13 – 14 million people in the United States with diabetes have non-insulin-dependent, or Type II, diabetes. Because this form of diabetes usually begins in adults over the age of 40 and is most common after the age of 55, it used to be called adult-onset diabetes. Its symptoms often develop gradually and are hard to identify at first; therefore, nearly half of all people with diabetes do not know they have it. For instance, someone who has developed Type II diabetes may feel tired or ill without knowing why. This can be particularly dangerous because untreated diabetes can cause damage to the heart, blood vessels, eyes, kidneys and nerves. While the causes, short-term effects and treatments of the two types of diabetes differ, both types can cause the same long-term health problems.
- Most importantly, both types affect the body's ability to use digested food for energy. Diabetes does not interfere with digestion, but it does prevent the body from using an important product of digestion, *glucose* (commonly known as sugar), for energy. After a meal, the normal digestive system breaks some food down into glucose. The blood carries the glucose or sugar throughout the body, causing blood glucose levels to rise. In response to this rise, the hormone insulin is released into the bloodstream and signals the body tissues to metabolize or burn the glucose for fuel, which causes blood glucose levels to return to normal. The glucose that the body does not use right away is stored in the liver, muscle or fat.
- In both types of diabetes, however, this normal process malfunctions. A gland called the *pancreas*, found just behind the stomach, makes *insulin*. In people with insulin-dependent diabetes, the pancreas does not produce insulin at all. This condition usually begins in childhood and is known as Type I (formerly called juvenile-onset) diabetes. These patients must have daily insulin injections to survive. People with non-insulin-dependent diabetes usually produce some insulin in their pancreas, but their bodies' tissues do not respond well to the insulin signal and therefore, do not metabolize the glucose properly, a condition known as insulin resistance.
- Insulin resistance is an important factor in non-insulin-dependent diabetes and scientists are searching for the causes of insulin resistance. They have identified two possibilities. The first is that there could be a defect in the insulin receptors on cells. Like an appliance that needs to be plugged into an electrical outlet, insulin, has to bind to a receptor in order to function. Several things can go wrong with receptors. For example, there may not be enough receptors to which insulin may bind, or a defect in the receptors may prevent insulin from binding. The second possible cause of insulin resistance is that, although insulin may bind to the receptors, the cells do not read the signal to metabolize the glucose. Scientists continue to study these cells to see why this might happen.

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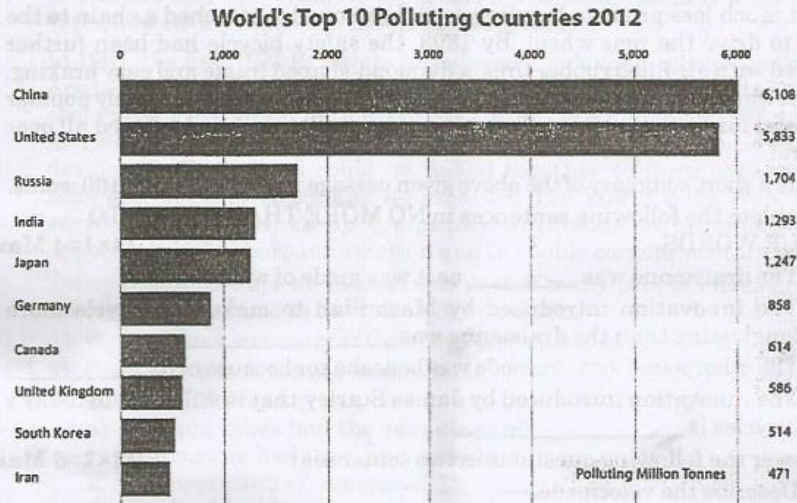
5) There's no cure for diabetes yet. However, there are ways to alleviate its symptoms. In 1986, a National Institute of Health panel of experts recommended that the best treatment for non-insulin-dependent diabetes is a diet that helps one maintain a normal weight and pays particular attention to a proper balance of the different food groups. Many experts, including those in the American Diabetes Association, recommend that 50 – 60% of daily calories come from carbohydrates, 12 – 20% from protein and no more than 30% from fat. Foods that are rich in carbohydrates, like breads, cereals, fruits and vegetables, break down into glucose during digestion causing blood glucose to rise. Additionally, studies have shown that cooked foods raise blood glucose higher than raw, unpeeled foods. A doctor or nutritionist should always be consulted for more of this kind of information and for help in planning a diet to offset the effects of this form of diabetes.

- 1) According to the passage, what may be the most dangerous aspect of Type II diabetes ?
 - a) Insulin shots are needed daily for treatment of Type II diabetes
 - b) Type II diabetes may go undetected and therefore, untreated
 - c) In Type II diabetes, the pancreas does not produce insulin
 - d) Type II diabetes interferes with digestion
- 2) Which of the following are the same for Type I and Type II diabetes ?
 - a) Treatments
 - b) long-term health risks
 - c) Short-term effects
 - d) Causes
- 3) A diet dominated by which of the following is recommended for non-insulin-dependent diabetics ?
 - a) Protein
 - b) Fat
 - c) Balanced nutrient levels
 - d) Raw foods
- 4) Which of the following is the main function of insulin ?
 - a) It signals tissues to metabolize sugar
 - b) It breaks down food into glucose
 - c) It carries glucose throughout the body
 - d) It binds to receptors
- 5) Which of the following is mentioned in the passage as a possible problem with insulin receptors in insulin-resistant individuals ?
 - a) Overating causes the receptors to function improperly
 - b) There may be an overabundance of receptors present
 - c) A defect causes the receptors to bind with glucose
 - d) A defect hinders the receptors from binding with insulin
- 6) Based on the information in the passage, which of the following best describes people with Type I diabetes ?
 - a) They do not need to be treated with injections of insulin
 - b) They comprise the majority of people with diabetes
 - c) Their pancreases do not produce insulin
 - d) They are usually diagnosed as adults
- 7) Your uncle who has diabetes comes to stay with you for a week and you have to look after him. Prepare a checklist of 4 items that you should check with respect to his diet and medication to make sure that his condition doesn't become worse.

(4)



- ii) Interpret the following chart in about 100 words. Also list your recommendations to bring about an improvement in the situation. (6)



12. a) Read the following passage and answer the questions given below :

Today, bicycles are elegantly simple machines that are common around the world. Many people ride bicycles for recreation, whereas others use them as a means of transportation. The first bicycle, called a draisienne, was invented in Germany in 1818 by Baron Karl de Drais de Sauerbrun. Because it was made of wood, the draisienne wasn't very durable nor did it have pedals. Riders moved it by pushing their feet against the ground.

In 1839, Kirkpatrick Macmillan, a Scottish blacksmith, invented a much better bicycle. Macmillan's machine had tires with iron rims to keep them from getting worn down. He also used foot-operated cranks, similar to pedals, so his bicycle could be ridden at a quick pace. It didn't look much like the modern bicycle, though, because its back wheel was substantially larger than its front wheel. Although Macmillan's bicycles could be ridden easily, they were never produced in large numbers.

In 1861, Frenchman Pierre Michaux and his brother Ernest invented a bicycle with an improved crank mechanism. They called their bicycle a *vélocipède*, but most people called it a "bone shaker" because of the jarring effect of the wood and iron frame. Despite the unflattering nickname, the *vélocipède* was a hit. After a few years, the Michaux family was making hundreds of the machines annually, mostly for fun-seeking young people.

Ten years later, James Starley, an English inventor, made several innovations that revolutionized bicycle design. He made the front wheel many times larger than the back wheel, put a gear on the pedals to make the bicycle more efficient and lightened the wheels by using wire spokes. Although this bicycle was much lighter and less tiring to ride, it was still clumsy, extremely top-heavy and ridden mostly for entertainment.

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It wasn't until 1874 that the first truly modern bicycle appeared on the scene. Invented by another Englishman, H. J. Lawson, the safety bicycle would look familiar to today's cyclists. The safety bicycle had equal-sized wheels, which made it much less prone to toppling over. Lawson also attached a chain to the pedals to drive the rear wheel. By 1893, the safety bicycle had been further improved with air-filled rubber tires, a diamond-shaped frame and easy braking. With the improvements provided by Lawson, bicycles became extremely popular and useful for transportation. Today, they are built, used and enjoyed all over the world.

- 1) Write a short summary of the above given passage in not more than 100 words. (6)
- 2) Complete the following sentences in NO MORE THAN THREE TO FOUR WORDS. (4×1=4 Marks)
 - a) The draisienne was _____ as it was made of wood.
 - b) The innovation introduced by Macmillan to make his bicycle more longlasting than the draisienne was _____.
 - c) The other name for velocipede was boneshaker because of its _____.
 - d) The innovation introduced by James Starley that is still used in today's bicycles is _____.
- 3) Answer the following questions in two sentences : (3×2=6 Marks)
 - a) Describe the velocipede.
 - b) What are the uses of the bicycle ?
 - c) What are the innovations introduced by Lawson in his bicycle design ?

(OR)

- b) Read the following passage and answer the questions given below :

The first step towards the creation of computers as we know them today was made by an English, Mathematics Professor, Charles Babbage who realized that all Mathematical calculations can be broken up into simple repetitive operations that could be carried out by an automatic machine. Sadly, Babbage never completed the machine. Seventy years later an American inventor, Herman Hollerith, created a computing machine out of necessity. Hollerith's "computer" was the first machine to use electricity. Mathematician George Boole determined that all Mathematical calculations can be stated as either true or false and defined the binary system – to be used by all future computers.

The first electronic computers instead of using electromechanical relays used fully electronic switches: vacuum tubes. These were about a thousand times faster than mechanical switches, but they were gigantic. This is the most important reason they were replaced by smaller transistors in the 1950s.

As transistors replaced vacuum tubes in the 1950s, computers began to grow smaller and faster. Early supercomputers replaced binary codes with programming codes consisting of a few letters and had an operating system and a memory and could store data on disk. Transistors created heat, which tended to damage the heat-sensitive components. This problem was eliminated by the invention of the integrated circuit in 1958. Another development of the 1960s was an operating system with a central program supervising other programs which could run simultaneously.



Since computers were no longer so large, they also became cheaper. In the 1970s, computer manufacturers were ready to bring computers to consumers. These computers had user-friendly programs and offered the first word processors, spreadsheets and even the first computer games !

In 1981, the first IBM PCs were introduced into homes, schools and offices. The Apple Macintosh was introduced three years later. The number of personal computers soared from 2 million in 1981 to almost 6 million in 1982, to 65 million in 1992. As their potential grew, new ways of using computers were being developed. Computers could be linked together to form networks sharing software, memory space and information. The World Wide Web, which was started in 1989, links up computers worldwide to provide people with opportunities to share information and to enable communication via e-mail.

Today computers are an inseparable part of many people's lives and jobs and are likely to continue to be tools that we rely on.

1) Write a short summary of the above given passage in not more than 100 words. (6)

2) Complete the following sentences in NO MORE THAN THREE TO

FOUR WORDS.

(4×1=4 Marks)

- a) Vacuum tubes had the advantage of _____
- b) Transistors had the disadvantage of _____
- c) The operating system could _____
- d) The world wide web enables people to _____

3) Answer the following questions in two sentences :

(3×2=6 Marks)

- a) How did the invention of the integrated chip help the growth of the computer ?
- b) What were the qualities that pioneers of computers looked to integrate into the computer ?
- c) When did the computer become suitable for mass production and use ?

13. Respond the **any one** of the following advertisements with a job application and resume.

(16)

a) Technomentis Edu Services is looking for fresh engineering graduates from all disciplines to work as Research Associate Job responsibilities: Assisting the R and D in developing courses, creating interactive learning materials. Candidate should adapt to new and emerging technologies and incorporate them into the curriculum. Candidate should possess excellent oral communication and presentation skills, technically sound strong basics in science and engineering and engaging personality. Interested candidates may send their applications with resume to the HR Manager, Technomentis Edu. Services, 101, MSX Tower-2, Alpha Commercial Belt, Alpha I, Greater Noida, Uttar Pradesh 201306.

(OR)

b) Smart Solutions has vacancies for engineering graduates from electrical, electronic, mechanical, civil and allied disciplines to work on various projects. Candidates should have good communication skills and should work in close coordination with clients, gauging requirements of clients and delivering technical solutions as per client specifications. Interested candidates may email their resume to smartsol21@gmail.com.

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14. Write a report on **any one** of the following : (16)

- a) Your college wishes to improve its performance in sports. For this purpose you, as student representative have been asked to conduct a survey among students about their opinions on how to improve students' participation and performance in sports and present a report to the Dean. Your survey should include questions on sports infrastructure, preferred sports, time allocation etc. Prepare a report with cover letter in about 300 words for this purpose.

(OR)

- b) Your department has set up a new study centre exclusively for students with a capacity of 50 people equipped with wifi, computers, photocopiers, scanners and other facilities. You are the student representative and you have been asked to prepare a report on the students' opinion of the facility. Prepare a report with cover letter in about 300 words to be submitted to the Head of the Department including details about how the students find the facility and whether any additions or changes need to be made.

15. Write a dialogue on **any one** of the following : (16)

- a) You have been called for an internship interview in a multinational core company. Write the dialogue that would have happened in the interview between you and the HR Manager. You have already cleared the written test and you could be offered the six month internship with a stipend of Rs. 15,000/- if you do well at the interview. The first two exchanges are given for your reference. You should have minimum of eight interactions (16 sentences) between you and HR Manager.

HR Manager: Why do you wish to take up an internship in this company ?

You : I would like to get some hands on training in the industry which would reinforce the fundamental concepts.

HR Manager:...

(OR)

- b) You are the Production Manager in your factory. You wish to introduce automation into a manual process followed in the factory. However your General Manager has doubts about the proposal. Write a dialogue in which you try to convince your GM to give their approval for automation. The first interaction is given for your reference. You should have minimum of eight interactions (16 sentences) between you and your GM.

GM : When our traditional process has been effective so long, why should we go in for automation ?

You : Sir, the manual process was effective when the volume of production was in kilograms. But today the volume has increased to tons.

GM:...