

Date \_\_\_\_\_

## Question # 02 (a)

## Answer # 02 (a)

## 1) Introduction

The statement refers to the shift of doctors who will no more treat diseases with drugs or mechanical treatment. Doctors in the future will ask patients to take a nutrient rich diet or called balanced diet. According to various studies it has been suggested by doctors that a meal with full nutrients like carbohydrates, minerals, vitamins, fats, protein, anti-oxidants will prevent any kind of disease not only prevent, it can also cure the various disease.

## 2) Role of Nutrition in

the human body  
Nutrients play central role in the well-functioning of human body. It provides energy and necessary nutrients that protect the human body from certain bacteria or diseases.

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For instance, Vitamins are of two kinds Fat soluble which are dissolved in the fats and are A, D, E and K. They are stored in the body and they are used by body during excessive exercise of the body. Moreover, vitamins that are water soluble are dissolved in water and can't be stored in the body.

Similarly, anti-oxidents, minerals and carbohydrates not only provide energy to the human body - but also necessary nutrients to fight any disease. For instance, there are certain fruits which increase the immunity of a person against any virus.

### 3) Conclusion

In a nutshell, it can be said that doctors will provide a chart of balanced diet which contains proper intake of vitamins, minerals, anti-oxidents and proteins. They will not only maintain well functioning of the body but also prepare it against any disease.



(b)

## 1) Introduction

Composting, incineration, and pyrolysis are kinds of solid waste management. Composting involves the decomposing of organic waste into the nutrient rich soil.

Whereas, incineration and pyrolysis involved the burning of the solid waste.

However, there is some difference in the incineration where it involves burning of solid waste to reduce its volumes and eliminate the pathogens. However, Pyrolysis involves the heat in absence of oxygen to convert various types of waste into useful products like, bio-oil, and syngas.

## 2) Composting

In this method of the solid waste management, the waste is reduced through the process of the decomposition. Waste is decomposed into the ~~solid~~ nutrient-rich soil. Its



beneficial is that it reduces the waste and gives a soil that is nutrient rich.

### 3) Incineration

Incineration involves the burning of solid waste at high temperature to reduce its volume and eliminate any kind of the pathogens from the waste. It is helpful in reducing the waste; however, it has negative impacts on the environment because of its burning.

### 4) Pyrolysis

Moreover, Pyrolysis is also a method of reducing waste. However, this method involves other process. It involves the burning of waste in the absence of oxygen in order to generate or produce other products. It can be concluded that this is more of a recycling process, where some products are reproduced in other forms.



## 5) Conclusion

In a nutshell, it can be said that composting is the process of solid waste management where the waste is decomposed into the nutrient-rich soil.

However, incineration is the process of reducing waste through burning the waste at high temperature. Through this process waste is not only reduced but also the pathogens are eliminated. Lastly, pyrolysis also involves the burning of waste; however, it is burnt in the absence of oxygen to produce other products like bio-oil and other such products.

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(C)

## 1) Introduction

The kidney plays an instrumental role in the human body. It cleans the blood of human body, produces hormones like renin and Erythropoiesin. Moreover, it also activates the inactivated Vitamin - D in the human body. However, the chief function of the kidney is to remove the waste products from the body and excrete those waste products through the urine. The formation of urine involves certain steps in the human physiology through which it is formed in the body.

## 2) Process of formation of Urine

Formation of urine involves following steps:

### a) Filtration

Firstly, blood enters the kidney through the renal arteries and kidney then cleans the blood and removes the waste products from the



blood and generates a fluid that is called "filtrate".

### b) Reabsorption

Secondly, the blood is reabsorbed again to extract substances like potassium ions and hydrogen ions back to the body - in order to maintain acid base of the body.

### c) Secretion

If then secretes some substances in the body.

### d) Formation of ~~the~~ Urine

The waste that was removed from the blood is then transformed in urine and excreted through it.

### 3) Conclusion

Blood is cleaned in the kidney and whatever the waste is in that kidney or excessive in the body, kidney turns it into the urine and this is how urine is



formed.

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2)

## 1 - Introduction

Semiconductors are materials that have electrical conductivity between that of conductors (like metals) and insulators (like ceramics). They change their electrical conductivity based on factors like temperature and the presence of the impurities. They are of two types: Intrinsic and extrinsic. Extrinsic or doped conductors are further divided into two types: P-type and N-type semiconductors. Semiconductors are called as the brain of modern electronics. It is used in the most of the electronic appliances to control their electrical conductivity.

## 2) Extrinsic (Doped)

Extrinsic conductors are the types of conductors that are doped. It means intentionally impurities are introduced in







## Question # 04

### Answer # 04

(a)

#### 1) Introduction

There are various cause of land pollution. Some of them are natural and some of them can be called as man made causes of the land pollution. Land is polluted when the waste generated by humans is not managed in an appropriate manner.

#### 2) Causes of land pollution

Land is polluted when the waste generated by humans is not managed properly. Some cause of land pollution are illustrated below.

##### a) Industrial waste

Industries generated a lot of waste which is dumped either in water or dumped in the land which increases the



### b) Landfilling

Waste generated is used in landfilling. All of the waste is dumped in the land which pollutes the land.

### c) Agriculture waste

Moreover, the agriculture waste also plays role in the land pollution.

### d) Acid Rain

Acid rain also pollutes land. It causes pollution of the land.

### e) ~~A~~ Absence of recycling

When products are not recycled and thrown just after using once also increases the waste and ultimately pollutes the land.

### 3) Conclusion

In a nutshell, land is polluted when there is the absence of proper solid waste management. The excessive use non-renewable or non-recyclable products generates waste and pollutes the land.



(b)

## 1) Introduction

COP-27 climate summit was held in Sharm el-Sheikh, Egypt, which formed various goals for the future. The Conference of Parties is held every year to discuss the goals of environment. It is done under the ambit of Paris Paris-agreement.

## 2) Main Goals of COP-27

If to set various goals like securing global net zero by mid-century, adapt to the impacts climate change that are already happening, keep 1.5 degrees Celsius Celsius alive - and mobilize the climate finance.

### a) Secure Global Net Zero by Mid-century

This means achieving a balance between emissions and removals, so that the net amount of greenhouse gases in the atmosphere is zero.



## b) Keep 1.5 degree Celsius alive

The goal of limiting global warming to the 1.5 degrees Celsius above pre-industrial levels.

## c) Adapt to impacts of climate change that are already happening

This involves helping the vulnerable communities to cope with extreme weather events, sea level rise, and other climate-related hazards.

## d) Mobilize Climate Finance

This means providing financial support to developing countries like Pakistan to help them reduce their emissions and adapt to climate change.

## 3) Conclusion

In a nutshell, COP-27 has simply revised previous goals and set some new <sup>goals</sup> ~~goals~~ <sup>goals</sup>. It was also assessed to <sup>loss and</sup> ~~loss and~~ <sup>loss and</sup> damage and <sup>go</sup> ~~go~~ <sup>go</sup> with the just transition.



Question # 04 (c)

Answer # 04 (c)

### 1) Introduction

GIS plays an important role in the environmental science. It is helpful in extracting data, information and geo-spatial images of the environment. It helps to achieve the goals of science. It is based on the satellites and computer based system.

### 2) Defining GIS

It is a computer based system that allows the users to capture, store, analyze, and display geospatial data on the digital maps.

### 3) Role of GIS in environmental Science

Moreover, GIS combines the geo-graphic, demographic, environmental and economic information to create interactive and informative



informative maps

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### a) Instrumental in giving Environmental data

GIS plays an important role as it gives information of the environment on the digital maps. Moreover, it can spot on the digital maps the areas where there is an excessive level of deforestation. Furthermore, it also gives information about the pollution in about the environment of the earth. In giving data about the environment, it gives the helpful hand to the environmental science.

### 3) Conclusion

GIS is instrumental in creating informative maps of the environment. It gives information about the environment of the earth.

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Question # 04 (d)

Answer # 04 (d)

### 1) Introduction

Artificial intelligence is based on certain algorithms instructed by humans. Its fundamentals include the algorithms, and its ability to make the decisions. It is interactive and works on the input instructions.

### 2) Fundamentals of Artificial Intelligence

There are various fundamentals of Artificial Intelligence which includes the machine learning, Deep learning, language (Natural) Processing and Computer Vision.

### 3) Machine Learning

Machine learning is a subset of AI that focuses on enabling machines to learn from data and improve their performance on a specific task over time.



## b) Deep learning

Deep learning is a specialized form of ML that uses neural networks with multiple layers to process and analyze large amounts of data. It has proven highly effective in tasks like image recognition, natural language processing, and autonomous driving.

## c) Natural Language Processing

NLP is a branch of AI that deals with enabling machines to understand, interpret, and generate human language in a way that is both the meaningful and contextually relevant.

## 3) Conclusion

Artificial intelligence is a computer based system which makes human-like decisions. It involves, machine learning, deep learning and natural processing. It possesses the ability to improve itself and produce interactive data.

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Q# 06

Answer # 06

a)

i) 10, 100, 200, 310, 430ii) 3, 7, 23, 95, 479

Question # 07

Answer # 07

BROTHER → Q D G S N Q A

SISTER → Q D S R H R