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Section-A

(Q3)

a) Polio:-

Polio also known as poliomyelitis contagious viral disease. It is caused by the poliovirus that can lead towards paralysis. Polio affected the nervous system.

Causes:-

Polio virus spread from person to person through water, food, saliva of an infected people

Symptoms:-

Polio virus symptoms can depending on severity of the infection. In instances persons who contract the polio virus do not display any symptoms. However, some persons may have flu, fever, headache, sore throat, muscle weakness and fatigue. In some case polio leading towards the leg paralytic.

Differentiate IPV & OPV

IPV (Inactivated Poliovirus Vaccine)

IPV is a inactivated poliovirus vaccine that killed the virus from body

IPV is a safe and effective vaccine and injection based vaccine. It has no active virus and cannot cause polio. IPV protects against polio but does not prevent virus from spread.

OPV (Oral Polio Vaccine):-

OPV is the live attenuated vaccine and it weakened the polio virus strains. Its administration have orally. OPV cause polio in rare cases, but it is far effective than IPV at preventing polio. OPV also help to the prevention of virus spread by generating immunity.

b)

Name of two part of Nervous System

- i) Central Nervous System (CNS)
- ii) Peripheral Nervous System (PNS)

Central Nervous System (CNS):-

The central Nervous System (CNS) is made up the brain and spinal cord. It is responsible for data processing and interpreting sensory information, generating thoughts and emotion, and sending commands to peripheral nervous system (PNS). The CNS made up billion of nerve cells which are neuron that communicate with body. CNS protected from skull & spinal column.

Alzheimer Disease:-

Alzheimer is the type of dementia that affects the brain. It caused the death of neurons in certain part of brain including hippocampus and cerebral cortex. Alzheimer disease is a progressive and degenerative brain disorder. It also affected the memory, thinking and behavior.

Symptoms:-

Alzheimer symptoms are the severe memory loss, Confusion, language problem, change in personality change in behavior.

Treatment:-

There is proper cure available currently but some medication and therapies can help to manage symptoms and slow the progress of disease.

1)

Carbohydrates:-

Carbohydrate are organic compounds that contain carbon, hydrogen and oxygen.

Structure:- The carbohydrates have four groups in their structure

i) Monosaccharides:-

These carbohydrates create one sugar molecule. It is simple carbohydrates such as glucose, galactose.

ii) Disaccharides:-

They are made up with two monosaccharides which are joined to glycosidic bonds such as sucrose, lactose.

iii) Oligosaccharides:-

They are made up with three to ten monosaccharide joined by glycosidic bond such as raffinose and verbascose.

Function

- **Forming cell walls:-** Cell walls are made up of cellulose, a polysaccharide. It provides support & protection.

- **Storing energy:-** Excess glucose is converted into glycogen and stored in the liver and muscles for later use.

- **Cell Communication:-** Some carbohydrates such as glycoprotein and glycolipids are involved in cell-cell recognition and communication.

db

Importance:-

Preservation and antibiotics are two types of food that are used to prevent food spoilage. Preservation works by preventing growth of microorganisms such as bacteria, fungi. Food spoilage can occur due to number of factors including growth of oxidases.

and enzymatic reaction. Microorganism can grow in food if food not properly stored, they produce toxins.

(Q5)

a)

Network & Internet Standards :-

Network and Internet Standard are a set of rules and regulation that how devices communicate with each other. These are based on protocols, rules, and how data received and process across the network.

Standards

Transmission Control Protocol/Internet Protocol (TCP/IP) :-

This is the foundation of internet and it set rules & guidelines how data work between devices and network.

Internet Protocol Suite (IPS) :-

This is a set of protocols that work together to provide internet connectivity.

Ethernet Protocol :-

This is a standard of wired local area networks (LAN).

b) Artificial Intelligence:-

Artificial Intelligence is a human intelligence simulation machine that works to perform task typically required for human intelligence such as problem-solving, learning, reasoning perception and natural language understanding. AI system have design to analyze data, adapt new information, and make decisions or recommendations.

Pros

- Automation & Efficiency
- Accuracy & Precision
- Data Analysis & Insight
- Available all time

Cons

- Job displacement
- Privacy Concern
- Security Issues
- Complexity & Dependence

c)

Construction of Fiber Optics:-

The fiber optic construct with core surrounded by a cladding layer which also made glass or plastic with slightly lower refractive index core. The buffer coating is surrounding the cladding, its protective layer. The outermost layer of optics

covered with jacket.

Transmitting Electromagnetic radiation:-

Fiber Optics are very helpful for transmitting electromagnetic radiation. They transmit light over long distances with very little loss of signals. It is totally core surrounded (allow the light travel).

d)

Bioavailability of Nutrient:-

It is refer to extent of which a nutrient can absorbed and utilized body. The bioavailability of nutrient can be affected factors.

Section B

(Q6)

a)

Sol

let 3 parts a, b, c

$$b \text{ is given } = \frac{1}{4} c \quad \text{--- (1)}$$

$$a : c \text{ is given } = 3 : 5 \quad \text{--- (2)}$$

Substituting eq 1 & 2

$$a : c = \frac{3 : 5}{4} c$$

$$a = \frac{15}{4} c$$

Now

$$a + b + c = 370$$

$$\frac{15}{4} c + \frac{1}{4} c + c = 370$$

$$\frac{21}{4} c = 370$$

$$c = \frac{4}{21} \times 370$$

$$c = 70$$

$$a = 225 \quad b = 17.5 \quad c = 70$$

b)

Sol

Kashif borrow 20% from brother
he had 20% of 800

$$\frac{20}{100} (800) = 160$$

total amount Kashif borrow from
brother & mother

$$160 + 30\% \text{ of } (800 - 160)$$

$$160 + 30\% \text{ of } (640)$$

$$160 + \frac{30}{100} \times 640$$

$$160 + 192 = 352$$

$$\text{total amount } 352 + 200 \\ = 552$$

$$\text{Kashif need } 800 - 552 \\ = 248$$

So Kashif need 248

c)

Sol

let 3 bags A, B, C

A = 3 red, 7 black balls

B = 8 red, 2 black balls

C = 4 red, 6 black balls

Probability of A, B, C

$$\text{Prob (Bag) A} = \frac{1}{3} \cdot \frac{3}{10} = \frac{3}{30}$$

$$\text{Prob B (Bag)} = \frac{1}{3} \cdot \frac{8}{10} = \frac{8}{30}$$

$$\text{Prob C (Bag)} = \frac{1}{3} \cdot \frac{4}{10} = \frac{4}{30}$$

$$A = \frac{3}{10}$$

$$B = \frac{8}{10}$$

$$C = \frac{4}{10}$$

d)

first light change = 24s

Second " " = 36s

Third " " = 72s

$$24 + 36 + 72 = 216$$