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M-Tahir

RWP-Batch-72

PART II

(Subjective portion)

(Question no 02)

(a)

Yes, I agree. In 21st century data perform same function that oil did in industrial age. It fuels economic growth and innovation. Like crude oil, raw data has little value until it's refined and analyzed.

Example:

Digital marketing-companies analyzes browsing data to target advertisement precisely.

Health-Sector - Design and track patient preventive

strategies.

Transport; Ride hailing and navigation depends upon real time data for navigation route optimization.

(b)

Expansion of universe - Ballon Analogy:

It's like cosmic expansion. Imagine galaxies as dots on ballon surface. When ballon is inflated - every dot moves away from others, Not because they travel across surface because surface itself expands. Similarly, galaxies recedes from each other as space itself stretches. It clarifies that universe has no fixed center of expansion, just as no single dot is center of ballon surface.

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(C)

Balance diet and vitamin deficiencies:

It contains all vital nutrients like carbohydrates, protein, fats, vitamins, minerals, and water in appropriate ratio to sustain body function.

Vitamin

Effect

A-Deficiency

cy

cause night blindness and weak immunity.

D-

Rickets, osteomalacia.

(D)

GPS working and fiber optics:

It determines user location at least 4 satellites, transmitting time stamped signal, receiver calculate distance using time and day. Intersection give latitude, longitude and altitude.

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Fiber optics: Transmits light pulses instead of electric signals, enabling high speed and long distance data transmission.

(Question 03)

(a)

why do cells form organelles:

cell form organelles to compartmentalize functions, ensuring efficiency and organization in biochemical reactions, performing specific tasks.

mitochondria:

It's double membrane organelles known as powerhouse of cell generating ATP through oxidative phosphorylation. The inner membrane form cristae that increases surface area for energy production.

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and apoptosis regulation
(b)

Doping and types of semiconductors:

Doping is process of intentionally adding impurities to pure semiconductor to modify its electrical conductivity.

n-type: Doped with atoms providing extra electrons phosphorus in silicon.

p-type: Doped with atom creating electronic deficiencies or hole (boron in silicon).

Doping enhances conductivity for modern electronic devices.

(c)

Merits

Fertile volcanic destruction of soil beneficial life and property for agriculture displacement
Creation of new population landforms and long term

Demerits

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~~Economic loss~~ Emission
mineral resources causes air,
source of geo land, and
thermal energy climatic
destruction.

(d)

Dengue fever:

Causative Agents:

Dengue virus (Flavivirus group), transmitted by Aedes Aegypti mosquitoes

Symptoms:

High fever
severe headache
muscle and joint pain
Rash, bleeding.

Remedies:

No specific antiviral drug; management is supportive - fluid replacement, Rest and paracetamol for

for fever.

(Question 4)

(a)

Chlorophyll and its function:

It's green pigment in chloroplast responsible for absorbing light energy for photosynthesis. It primarily absorb red and blue wavelength light into chemical energy.

Two, chl-A and chl-B work together to initiate light dependent Reaction for photosynthesis.

(B)

Role of Ribosome in protein synthesis:

Ribosomes are molecular machine that translate genetic info from mRNA into protein. They link Amino Acid to form peptide bond by p-p chain. It can be

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free or attached in
endoplasmic reticulum
depending upon synthesis
protein.

(c)

Methods for solid
waste managements:
Reduction and Reuse:

minimize waste gener-
ation at source.

Recycling:

convert material into
Reusable product.

Compositing:

Decompose organic
waste into manure.

Sanitary landfill:

safely dispose of non-
recyclable products.

Incineration:

Burn waste to reduce
volume and generate
energy.