Mock-6
CSS-2025

Subject: "General Science And Ability"

PART - II

Section - II

Question NO: 6

Part (a)

Given:

Sum of 3-digit number = 15
Sum of the 10th and unit digit = 12
Difference of the unit digit from 10th digit = 2

To Find:-

What is the three digit number.?

Solution:-

Let the three digit number be

$$100^{th} \quad 10^{th} \quad unit$$
$$x \qquad y \qquad z$$

where
$$x + y + z = 15 \rightarrow \text{(i)}$$
$$y + z = 12 \rightarrow \text{(ii)}$$
$$y - z = 2 \rightarrow \text{(iii)}$$
$$\text{or} \quad y = 2 + z \rightarrow \text{(iv)}$$

Putting eq ⅱ in ①

$$X + 12 = 15$$
$$X = 15 - 12$$
$$X = 3 \longrightarrow Ⓥ$$

Putting the value of "x" & "y" from equations Ⓥ and ⅳ in eq ①

$$3 + 2 + z + z = 15$$
$$5 + 2z = 15$$
$$2z = 15 - 5$$
$$2z = 10$$
$$z = \frac{10}{2}$$
$$Z = 5 \longrightarrow Ⓥⅰ$$

Also from eq ⅰ

$$y = 2 + z$$
$$= 2 + 5$$
$$y = 7 \longrightarrow ⅶ$$

Hence, from equations Ⓥ, Ⓥⅰ & ⅶ the three digit number is

X	Y	Z
3	7	5

Part (b)

Given :-

A man ordered pizzas of small, medium and large sizes for = 18 persons

No of slices each person got = 1

Each size contains different numbers of slices and the ratio is = 2:3:4

Weight of each slice = 40 gm

Price of smaller pizza = Rs. 320

To Find :-

Price of a total Pizza = ?

weight of a total Pizza = ?

Solution :-

Number of persons is equal to number of pizza slices.

Let no of slices = x

Then,

$$2x + 3x + 4x = 18$$

No of persons = 18

and No of slices per person = 1

$$9x = 18$$

$$x = 2$$

No Slices for each size of pizza
Small pizza = 4 slices
medium pizza = 6 slices
large pizza = 8 slices

Total weight = total slices × wt of each slice

$$= 18 \times 40$$

[Total weight = 720 gm]

Now, Price of Small pizza = Rs. 320

4 slices = Rs. 320
1 slice = Rs. 80
18 slices = Rs. 80 × 18
= Rs. 1440

Total price of all pizzas = Rs. 1440
Total weight of pizzas = 720 gm.

Part (c)

Given

Diameter of a circle = 6 cm

Hence, radius = $\dfrac{d}{2}$ = 3 cm

To Find :-

Circumference of circle ? $C = 2\pi r$

Area of Circle = ? $A = \pi r^2$

Solution :-

Circumference = $2\pi r$ = $2 \times 3.14 \times 3$ = 18.8 cm

Area = πr^2 = $3.14 \times (3)^2$ = 28.3 cm²

Part (d)

Find the missing no :-

24-13=11   46-24=22   90-46=44   178-90=88   354-178=176

i-   13, 24, 46, 90, 178, 354

ii-   5, 6, 9, 14, 21^{+9}, 30

Question No : 7

Part (a)

Difference between

I.Q	E.Q
i- Stands for intelligence Quotient.	i- Stands for Emotional Quotient.

I.Q	E.Q
ii) It means being smarter with numerical and verbal data	ii) It means being smarter with feelings.
iii) Measure Cognitive abilities and potential	iii) measures ability to recognize, understand and manage emotions
iv) believed to be relatively stable through out life	iv) Can be developed and improved over time.
v) Assessed Through Standard tests	v) Assessed Through various methods, Including Self-report and performance based measures.

Part (b)

Given:-

Age of Aman after 20 years = 10 times his age 10 years ago.

To Find:-

Find present age of Aman = ?

Solution:-

Let age of Aman = x

Aman age before 10 years = $x - 10$

Aman age after 20 years = $x + 20$

we are given :-

$$x + 20 = 10 (x - 10)$$

$$x + 20 = 10x - 100$$

$$100 + 20 = 10x - x$$

$$120 = 9x$$

or $\qquad 9x = 120$

$\qquad\quad x = 13.3 \text{ years}$

Part (c)

Given:-

Peter can mow the lawn in $= 40$ min

John can mow the lawn in $= 60$ min

To Find:-

How long will it take to mow the lawn together $= ?$

Solution:-

First figuring out their Rates:-

Peter mow the ^{1}lawn in 40 minutes

his rate $= \dfrac{1}{40}$ per minute.

John $\qquad \dfrac{1}{60}$ per minute

when they work together their rate of working add up

$$\dfrac{1}{40} + \dfrac{1}{60} = \dfrac{60 + 40}{2400} = \dfrac{100}{2400}$$

Rate of working together $= \dfrac{1}{24}$

that is 1 lawn in 24 minutes.

Part (d) :-

Given :-

A person multiplied a number by $3/5$ instead of $5/3$

To find :-

What is the percentage of error in his calculation?

Solution :-

Let the number be "x"

Then according to given data   Error % =

$$\left(\frac{Error}{True\ value}\right) \times 100$$

$$\frac{\left(\dfrac{5x}{3} - \dfrac{3x}{5}\right)}{\dfrac{5x}{3}} \times 100$$

$$Error\ \% = \left(\frac{\dfrac{16x}{15}}{\dfrac{5x}{3}}\right) \times 100$$

$$= \left(\frac{16x}{15} \times \frac{3}{5x}\right) \times 100$$

$$= \left(\frac{48x}{75x}\right) \times 100$$

$$= 0.64 \times 100$$

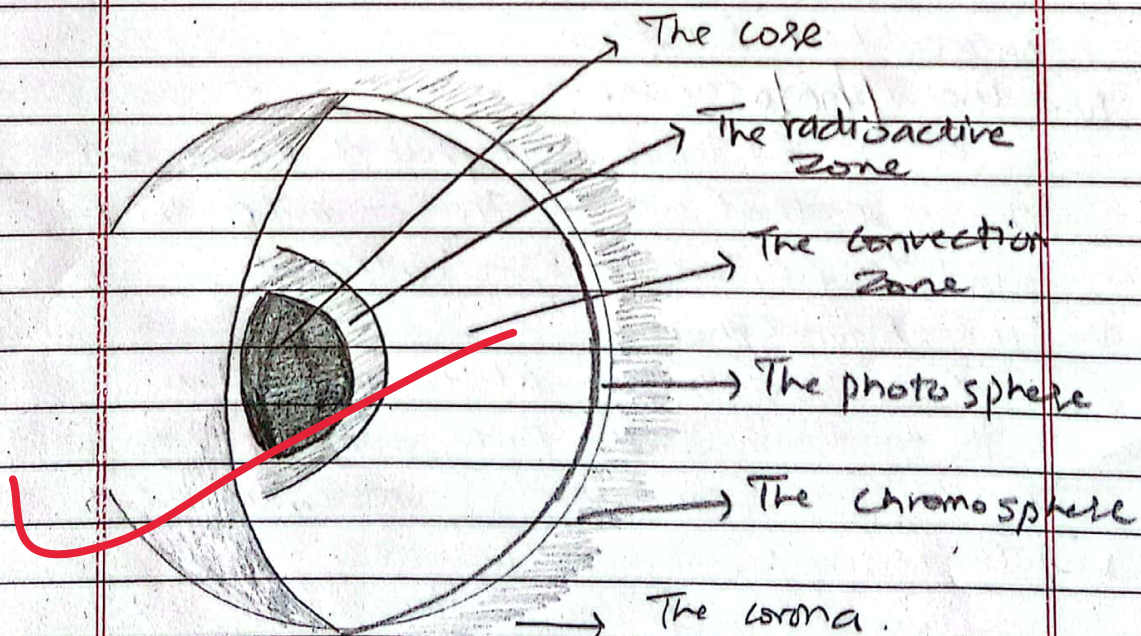$$Error\ \% = 64\ \%$$

Section – I

Question No : 3

Part (a):-

Sun:-

Sun is the star at the center of the solar system. It is perfect sphere of hot plasma. It is the closest star to the Earth and number of the milky way.

Structure of the Sun:-

Diagram:

- → The core
- → The radioactive zone
- → The convection zone
- → The photosphere
- → The chromosphere
- → The corona.

Explanation:-

1- The Core:

The innermost part of the sun with tremendously high temperature and pressure. that reaches to roughly 15 million centigrade. At this temperature nuclear fusion occurs converting hydrogen to helium nuclei and energy.

ii- Radioactive Zone:-

After core is radioactive zone which is between 20% of radius to 70% of radius in which energy transfer occurs by means of radiation (photons)

iii- Convection Zone:-

After radioactive zone to the visible surface of the sun is convection zone. Here sun diffuses and enough energy is released that becomes primary source for outward heat transfer.

iv- The photosphere:-

It is the lower atmosphere of the sun and the part that we see. Its 300 miles thick. and temperature is 5,500 centigrade.

v- The Chromosphere:-

A reddish layer outside photosphere with few thousand miles thickness and rising temperature from 6000 to 50,000 centigrade.

vi- The Corona:-

Outer layer of Sun's atmosphere that extends for millions of miles from the surface and temperature reaches one million centigrade.
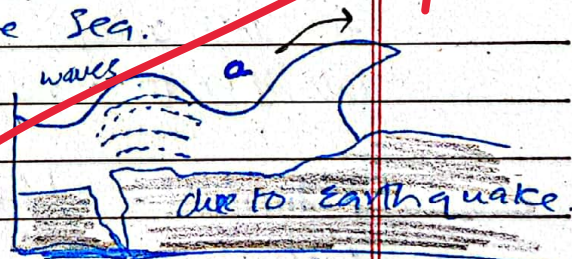
Part (b)

Tsunami:

Tsunami is a Japanese word meaning "harbour wave". It is used as the scientific term for a class of abnormal sea wave that can cause catastrophic damage when it hits a coastline.
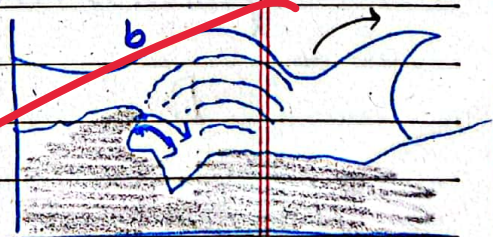
How it is generated:

Tsunami can be generated by an undersea;

a) Earthquake
b) landslide (erosion)
c) volcanic eruption
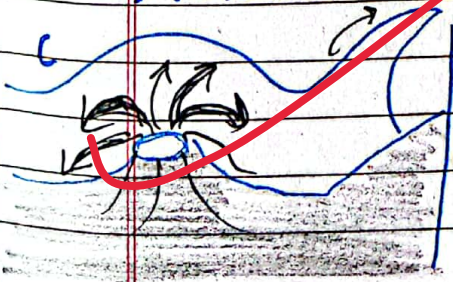d) By the force of an asteroid crashing into the sea.

a) Earthquake tsunami:

waves — a
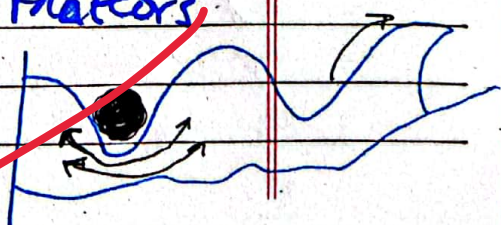due to Earthquake.

b) Erosion/landslide tsunami.

b

c) volcanic tsunami:

c

d) Falling Meteors.

Examples of some recent tsunamis:-

a) The 2011 Tohoku Earthquake and Tsunami that is also called Great Japan tsunami which killed 18,000 people.

b) The 2004 Indian ocean tsunami which killed 225,000 people across dozen of countries like Indonesia, Sri Lanka, India and maldives.

Part (c)

Environmental Pollution:-

Environment is the surrounding and conditions of people, animals and plants. The deterioration of the natural surrounding of living creatures due to anthropogenic and natural causes is called environmental pollution.

Harmful effects of Environmental Pollution:-

Damaged ecosystems:-
When particulate pollution is heavy in an area, it can have a huge impact on forests, wildlife and coastal regions. This impacts the delicately balanced plant and

animal life. When Natural web is affected the life of many Species is endangered.

Health effects:
Exposure to pollutants in environment causes several diseases in all living creatures.

Types include:-
Air pollution, water pollution, land pollution, noise pollution, and water pollution.

Measures to curb environmental pollution :-

i) Use of natural things in comparison to synthetic objects.

ii) Reduce, Reuse and Recycle policy should be followed.

iv) Renewable energy resources in place of fossil fuels should be used.

v) Growing forests.

vi) treating the industrial waste

vii) Natural remedies for diseases like in agriculture.

viii) treating and disposing human waste properly.

ix) The natural environment should be retained and extinction of plants and animals should be stopped by conservation and bioengineering

x) Life Style changes and better human decision of routine life can better the situation a lot.

Part (d)

What is wireless communication?

definition:-

Wireless communication is the method of transmitting information from one point to other without using any connection like wires, cables or any physical medium

Basic elements of wireless communication:-

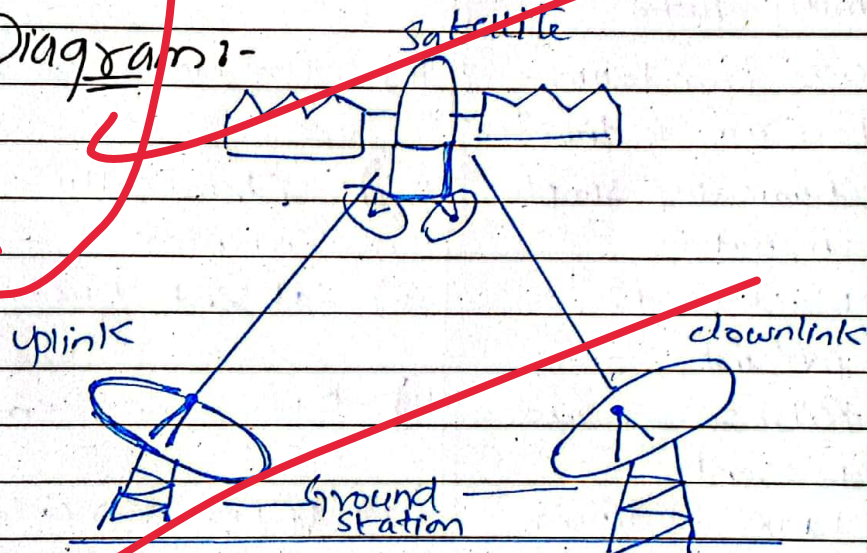   i- The transmitter

   ii- The channel

   iii- The receiver.

3

Working of a satellite:-

Definition:-

A satellite is an object in space which orbits or circles around a bigger object. There are two kinds of satellites. natural (moon) or artificial (international space station)

Diagram:-

satellite

uplink   downlink

Ground station

Working of Satellite:-

i) Uplink :- The first stage, e.g signal on the other side of earth is first beamed up to satellite from ground station on earth known as uplink.

ii) Transponders :- The second stage involves transponders such as radio receivers, amplifiers and transmitters. They boost signals and try to maintain outgoing signals frequency.

iii) Downlink :- The final stage in which data is sent to the other end or receiver on Earth. The downlinks can be multiple.
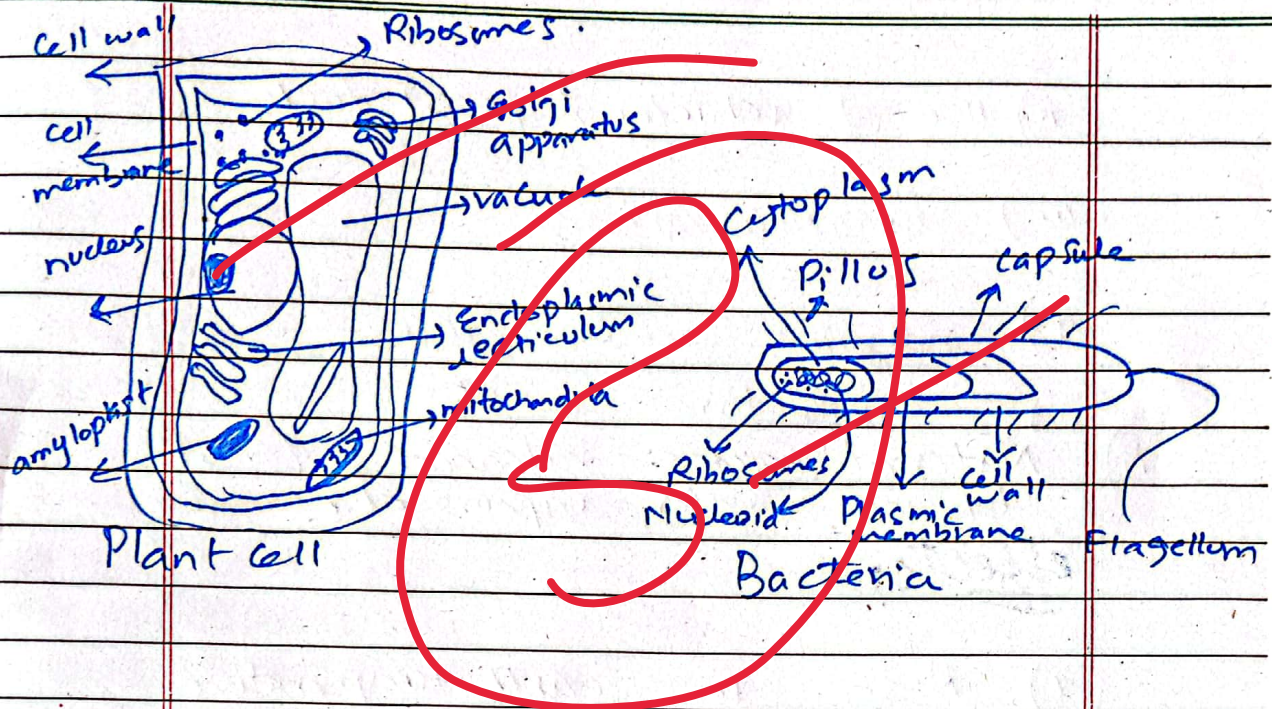
Question No.5

Part (a):

Difference between

Eukaryotic Cell	Prokaryotic Cell
i) Unicellular & multicellular	i) always unicellular
ii) size from 10μm - 100 μm in diameter	ii) 0.2 μm - 2.0 μm
iii) Chemically simple in nature	iii) Chemically complex
iv) Nucleus is present	iv) absent nucleus
v) Ribosome are present	v) Ribosomes small
vi) DNA is linear	vi) DNA circular
vii) Cell division through mitosis	vii) through binary fission.
viii) Mitochondria present	viii) absent
ix) Endoplasmic reticulum present	ix) absent
x) Flagella present and large	x) smaller in size
xi) Reproduction both asexual & sexual	xi) asexual
xii) examples: Plant & animal cell	xii) Examples Bacteria.

Cell wall

Ribosomes

Golgi apparatus

cell membrane

vacuole

Cytoplasm

nucleus

Pillus

Capsule

Endoplasmic reticulum

amyloplast

mitochondria

Ribosomes

Nucleoid

Cell wall

Plasmic membrane

Flagellum

Plant cell

Bacteria

Part (b) :

Global Warming:-

Definition :-

Gradual increase in Earths temperature due to greenhouse effect that is intern caused by CO_2, CFCs and other pollutants.

Causes:-

A) : Man made Causes:

1) Deforestation.

ii) Use of vehicles / fossil fuels

iii) Chlorofluro Carbons

iv) Industrial waste gases.

v) Agricultural waste

B) Natural Causes: · valcanoes, forest
blazes, water vapours etc.

Effects:

i) Rise in earth temperature

ii) Threat to ecosystem

iii) climate change

iv) spread of diseases

v) loss of natural habitat.

Measures to Control:

i) Use of Renewable energy

ii) Energy efficient homes
& workplaces

iii) Refuse, reduce, reuse
and recycle policy.

iv) stop deforestation.

Kyoto Protocol:

Introduction:-
International treaty to reduce green house gases emission. It extends 1992 UNFCCC commitments.

History:-
adopted On 11 Dec 1997 and entered into force on 16 February 2005

Goals:-
Reducing global warming by reducing green house gases to a level that is not dangerous.

Achievements:-

The goals could not be achieved well due to increase in production of greenhouse gases by countries That are not top Producers at the time of treaty

Criticism:
US and China are the largest Producers need to take Concrete Steps That are lacking.

Part (c):-

Q5:-

Definition:-

you can edify by presenting it in more fascinating way. such as diagrams, clearly labeling it. creating heading and sub headings and then explain it a little. following the standard method for maths portion with accurate calculations. and good use of marker can help you in earning good grades.

Part (d) :-

Antioxidants :-

Definition :-