Muhammad Wali Batch ISB-055

Q NO: 4

(a) Definitions:-

i) Pesticides:-

Pesticides are chemical or biological compounds that prevents or kill pests. The Food and Agriculture Organization (FAO) defined pesticides as "any substance or mixture of substance intended for preventing, destroying or killing any pest". There are many types of pesticides according to the type of pest they kill.

e.g: ↳ Insecticides are used to kill insects

↳ Herbicides are used to kill Herbs, weeds and plants.

↳ Rodenticides are used to kill mice and rats.

ii) Herbicides:

Herbicides are those chemicals that are used to kill weeds and unwanted plants. Herbicides are classified as selective when they are used to kill weeds without harming

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the crop and as non-selective when the purpose is to kill all vegetation.
Typical examples of herbicides are Glyphosate, Atrazine, Bromacil, Diquat, and Diuron.

iii) Insecticides:-

These are chemicals that used to kill insect or maligate them. Insecticides are generally used in agriculture to control pests that are harmful for crops, but they have other uses as well such as eliminating insects that spread diseases. Insecticides can be classified in many ways, like how they work, their mode of action, or what they are made of.
i.e systemic insecticides, contact insecticide etc
Examples of insecticides are — organophosphates, pyrethroids, and Carbamates.

iv) Ceramics:-

Ceramic include a wide range of inorgnic, non-metalic materials menufactured through high temprature.

Earth raw materials used in its manufacture contain predominantly silicon with its oxides and complex compounds known as silicates. clay, Feldspar, Quartz sand, and Iron are raw material for ceramics. pottery is an important category of ceramics. It includes earthware, stoneware and procelain. Glass is another ceramic material consisting of a mixture of silica, soda, and lime. Applications of ceramics are: integrated circuits, Ruby used for Laser materials, ceramics engine, in space shuttle ~~cer~~ cermics are used to protect them from high temprature.

v) Green House Effect:-

Def: Green house effect is the process by which radians from the sun are absorbed by the green house gases and not reflected back into space.

During the day time the sun heats up the earth's atmosphere. At night, when the earth cools down the heat is radiated back into the atmosphere. During this process,

the heat is absorbed by the gasses like Carbon dioxid, chlorofluoro carbons in the earth atmosphere.

Due to increased level of greenhouse gassed the earth temprature has increased considerably. The major contributors to the green-house gasses are factories, automobiles, deforestation etc.

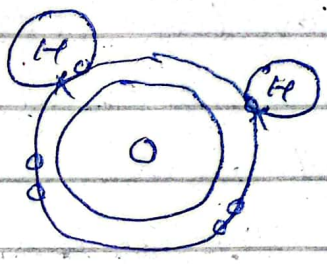
Global warming, Depliontion of ozone, smog, anel air pollution are the major effects of Greenhouse effect.

Q NO: 4

(b) Bonding in water molecule:-

water is formed when two atoms of hydrogen combine with one atom of oxygen.

$H_2 + O2 \longrightarrow H_2O$



Hydrogen bonds are special type of parmanent dipole-dipole forces that form when hydrogen form a covelent bond with a very electronegative element like oxygen, nitrogen or flourine. water molecules are highly polarized molecules that are able to form an extensive network of hydrogen bond.

4: c) ↳ waves used in RADAR:

RADAR system use electromagnetic or radio waves. Most object reflects radio waves, which can be detected by Radar system.

↳ waves used in SONAR:

SONAR system uses ultrasonic waves. It is generally used to detect obstacle in a path. specially

by submarines.

↳ waves used by LIDAR:

LIDAR system uses visible light for detection and Ranging. like ultraviolet or infrared.

↳ waves used by Mobile phones:-

Mobile phones uses Radio waves. Radio waves have the longest wavelength in the electromagnetic spectrum.

↳ waves used by Thermistors:-

Thermistor are sensors that resists temperature. They generally detects heat and cool temperature.

4- d) advantages of AI:

↳ one of the biggest advantage of AI is its availability 24/7.

↳ Accuracy and reduced rate of error.

↳ Helping in repetetive job

↳ Can be sent ~~were~~ where human can not perform like Deep sea and space.

↳ Faster Decisions.

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Disadvantages of AI :

↳ High cost due to updation and latest requirements.

↳ making human Lazy.

↳ unemployment

↳ No Emotions

↳ Lacking out of Box thinking.

Q NO: 5

a) Block diagram of input & output devices of Computer.

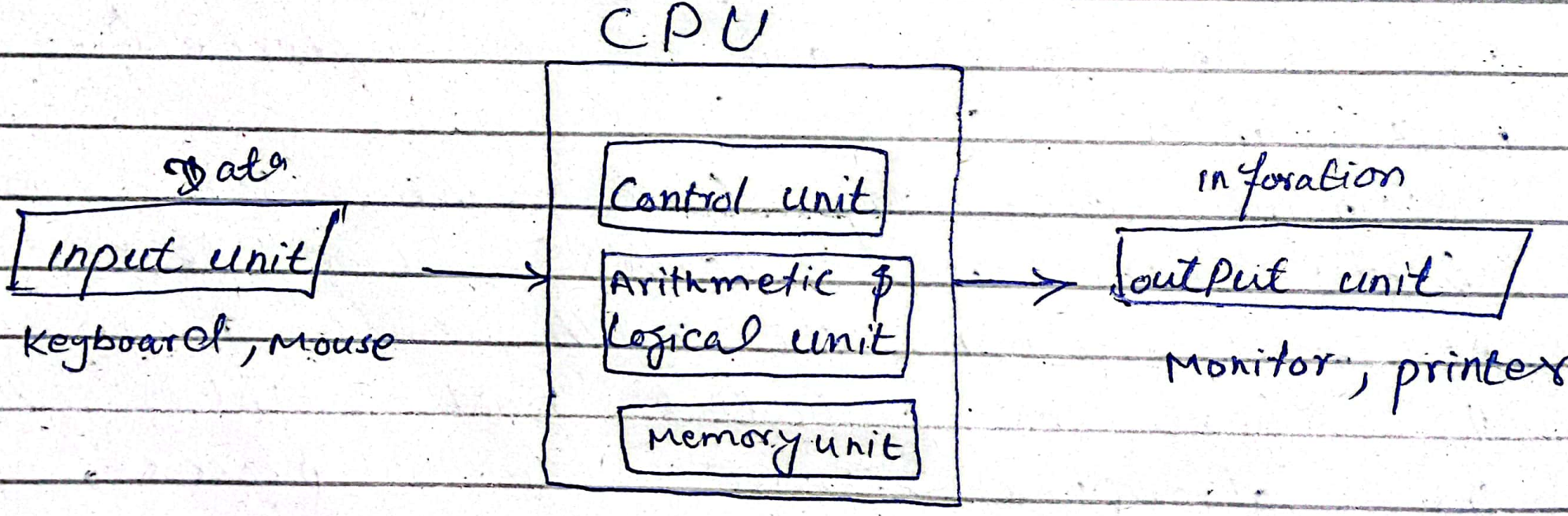

Figure. 1

Through input unit data is entered into CPU (computer) using input devices like mouse, keyboard for processing. After the data is processed the required information may either be stored in secondry storag (Hard disk, usb) or provided through output devices like Monitor, Printers etc as output. as shown in "Figure 1".

b) Optics :-

Light emitting from it source consists of small tiny packets of energy called photons. These photons have both the properties of wave as well as particles. Hence, this type of property is called wave-particle duality.

Optics is the branch of physics which is concerned with Light and ~~its~~ its behavioural pattern and properties.

Optical Fiber Functioning/work :-

The Light in a fiber-optic cable travels through the core ~~th~~ by constantly bouncing from the

cladding, a principal called total internal reflection. Because the cladding does not absorb any light from the core, the light wave can travel greater distance.

c) Methods of solid waste management:

Solid waste management is a set of techniques that are used to dispose off or recycle the solid waste of industries or homes so that to minimize the risk of adverse effects. These methods are:

i) Land fill methods
ii) Sanitary landfills
iii) Treatment of industrial waste
iv) Incineration of industrial and Hazardous waste.
v) Recycling of waste
vi) Pyrolysis of solid waste.

D) Distinguish GPS and GIS:-

GPS	GIS
i) GPS stands for global positioning system.	GIS stand for Geographic information system.

ii) GPS is a navigation system that provides that provides location and guidance

iii) GPS is used to determine location, time, speed, elevation, etc.

iv) GPS is measuring equipment

v) GPS relies on satellite signals to pinpoint location

ii) GIS involves analysis and mapping of Geographic data.

iii) GIS uses maps and coordinates to study the world.

iv) GIS is a science that uses GPS data for analysis.

v) GIS does not rely on satellite signal but collect data from different sources i.e GPS, aerial photos.

SECTION : 2

Q No: 6

a) Given That:

Length of Fence = 300 Ft

Let longer piece = A

shorter piece = B

Given that $A = 4x$

$B = x$

So $A + B = 300$

$\Rightarrow 4x + x = 300 \Rightarrow 5x = 300$

$\Rightarrow x = 60$ by dividing both sides by 5

Hence $B = x = 60$ Ft

$A = 4x = 240$ Ft } Ans

Q NO: 6 b) Let Length = L

Width = w , Perimeter = P

Given that

$L = 2w + 3$ ---(i) , perimeter = 20 Inches

we know that perimeter of rectangle = $2(L + w)$

so by putting values

$P = 2(L + w) \Rightarrow P = 2(2w + 3 + w)$

$\Rightarrow P = 2(3w + 3)$

$P = 20$

So $20 = 6w + 6$

$14 = 6w$ by subtracting 6 from both sides

$w = \frac{14}{6}$ Dividing both sides by 6

or $w = \frac{7}{3}$

To find value of L, put value of w in equation (i)

$L = 2w + 3 \Rightarrow L = 2\left(\frac{7}{3}\right) + 3$

$\Rightarrow L = \frac{14}{3} + 3 \Rightarrow L = \frac{14 + 9}{3} = \frac{23}{3}$

So dimension are :

Length $= \frac{23}{3}$ inches

width $= \frac{7}{3}$ inches

Ans

Q:6:c) Given:

Total % of win matches = 60%

Matches lost = 24

Total matches = ?

Solve: Here first we have to find % of lost matches

So ~~100% 60 = 40~~

100% − 60% = 40% → % of lost matches

Let the total matches = x

Hence 40% of x = 24

$\Rightarrow \frac{40}{100} x = 24$

$\Rightarrow \frac{2}{5} x = 24$

$\Rightarrow x = 24 \times \frac{5}{2}$

$\Rightarrow x = 60$

Total matches = 60 Ans:

Q:6:d) Let first number = A

and number = B

Given ration 3 : 2

A = 3x , B = 2x

⇒ 2 is added to first number

A = 3x + 2 — (1)

⇒ 6 is added to the second numbe

$B = 2x + 6$ — (11)

After adding 2 and 6 to the number 'A' and 'B' respectively Their ratio became 4 : 5

So by Comparing

$$\Rightarrow \frac{3x+2}{2x+6} = \frac{4}{5} \Rightarrow 15x + 10 = 8x + 24$$

$$\Rightarrow 15x - 8x = 24 - 10 \Rightarrow 7x = 14$$

$$\Rightarrow x = 2$$

Given put value of x

$A = 3x \Rightarrow A = 6$

$B = 2x \Rightarrow B = 4$

So A = 6 , B = 4 Ans

Q No: 7 a)

Given Data

Total seats in Concert hall = 400

Seats occupied = 325

Attendance percentage = ?

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Formula = $\frac{\text{Total Present}}{\text{Total capacity}} \times 100$

$= \frac{325}{400} \times 100 = \frac{325}{4}\%$

$\Rightarrow \frac{325}{4} \Rightarrow 81.25\%$

Percentage of attendance = 81.25% Ans

Q:7

b) Let the give Data be arange in table

Persons	Sugar	No. of days
↑ 30	40 ↓	10 ↓ unknown to know
80	320	x?

Days and sugar are in direct proportion
Days and persons are in inverse proportion

So compound proption becomes

$\Rightarrow 10 : x = 80 \times 40 : 30 \times 320$

$\Rightarrow 10 : x = 3200 : 9600$

$3200x = 96000 \times 10$

$$\Rightarrow x = \frac{96000}{3200} \Rightarrow x = 30 \text{ days}$$

Q No: 7

c)

Given data

South travel = 5 km — (i)

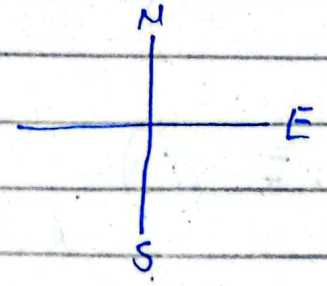
west travel = 3 km — (ii)

North Travel = 4 km

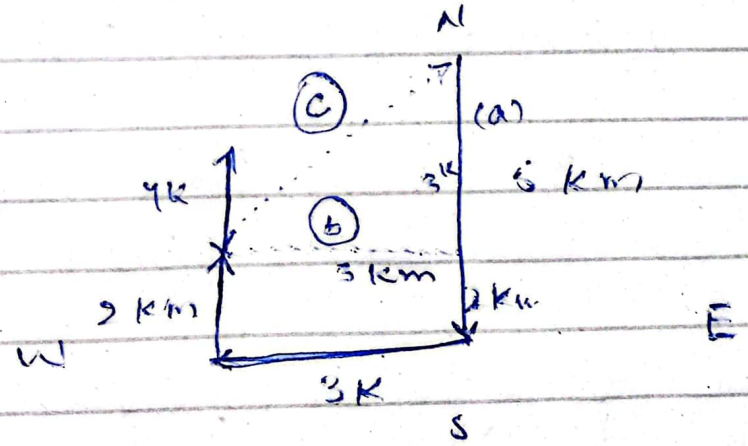
South Travel = 2 km

Total North travel = 4 km − 2 km = 2 km

Net North travel = 2 km — (iii)



From equation i, ii, iii figure can be drawn as



In right angle triangle according to Pythagoras theorem

Hypotenuse^2 = perpendicular^2 + Base^2

$c^2 = a^2 + b^2 \Rightarrow c^2 = 3^2 + 3^2$

$c^2 = 9 + 9 \quad c^2 = 18 \Rightarrow c = \sqrt{18}$

$c \cong 4.24$ km

so distance from initial point

$\cong 4.24$ km

Q:7 d)

Radius of cylinder = 10cm

hight of " = 36cm

volume of cylinder = ?

we know that

volume of cylinder $= \pi r^2 h$

so volume $= \frac{22}{7}(10)^2 36$

$= 3.14 \times 100 \times 36$

$\Rightarrow 314 \times 36 = 11304$

volume of cylinder $\cong 11304$ cm