Name. Mulammad Rasheed

Mock 2

Subject General science & Ability

LMS id 32443

Date 5, June, 2024

Batch 60

G8 MOCK #2 Date

PART-II

SECTION-I

Q.No.4

PART-a

Answer:

What are renewable Enery Resources?

Renewab energy resources are the type of energy which is used to produce electricity. Such resources are available in nature in abundant quantity.

Example

- Wind Energy
- Solar Energy
- Hydral Energy, and other
- Biofuels

Available sources of Renewable Energy in Pakistan.

Because of variations in its geography various energy resources are available in Pakistan, such as;

i. Solar Energy:

As Pakistan is located in warm tropical region, there is a Sufficient amount of solar energy is available to fit the demand of energy of Pakistan. According to one estimation Pakistan has the capacity to produce about 1 lac MW from its solar energy resources.

Example:

- Thar Power project
- Bhawalpur Project; Quaid-e-Azam Solar Plant.

Date _____

ii. Wind Energy:

Pakistan has also chance to cover its energy requirement from wind energy due to availability of various coastal regions. To produce electricity from winds, huge turbines are installed in windy region where the speed of air remains in between 22 - 25 km/h. However, fast flow of winds can cause damage to the turbines.

Example:

- Jamshoro wind Energy Project in sindh.
- Gawadar wind Energy Project in Balochistan.

iii. Hydral Energy.

To produce electricity from water, water is placed on high altitude and flow of water is allowed in downward direction. Hence, This process moves the turbines and converts kinetic energy into electricity.

Example:

- Tarbela Dam.
- Warsak Dam
- Mangla Dam, etc.

iv. Thermal Energy

Thermal Energy is also a type of renewable energy resource in which energy in the form of heat is used to produce electricity. In this process, wells are constructed on the vent of lava mountain then water is allowed to fill that wells. As a result, steam generates which is then converted into electricity.

Example:

- Mud Lava Mountain in Balochistan.

Date

Policy options to utilize these sources to overcome the Present Day Energy crises:

Total Energy Requirment of Pakistan is about 22000MW. However, the this figure changes with the change of seams. In order to reduce energy shortfall and produce energy for the future use. Pakistan need adopt following Policies;

i. Quick shift towards Green Energy
ii. Reduce non-renewable Enrgy Consomption
iii. Emphasize on the use of Public transport
iv. Reduce the Prices of Solar-Panels
v. Renewing the contract with Ipps.

PART-B

The SUN:

The sun is about 4.6 billion years old star which is the only source of energy in our solar system. It contains about 99.8% mass of the solar system and the rest of the mass which is 1-2% is contained by other objects. In addition, the sun is composed of about 72 PC. hydrogen 21% methane, and 1% is contained by other nobel gases. According to the scientist, the conversion of hydrogen into methane is a continous process. Here Therefore, the percentage of these is not fixed.

Structure of the Sun:

The structure of the sun can be classified into two part; First is Atmospheric structure and other is internal structure. Each part has their own functions

THE INTERNAL LAYERY

ZONE
CONVECTIVE
RADIATIVE → ZONE
THE CORE

THE ATMOSPHERIC LAYER

THE CRONA
CHROMOSPHERE
PHOTOSPHERE

DIAGRAM: The STRUCTORE
of the Sun.

1. The Internal layers:

The atmospheric layers of the sun are classified into further three parts

i. The Core:

It is the innermost layers of the sun. Nucleear fusion reaction also takes place on core of the sun. After nuclear fusion energy moves to the next layer.

Temperater: Here, temprature remains about 27 million °C.

ii. Radiative Zone:

It is present right about the crona. The Energy in the form of Photon travels in Radiative zone where other partid like dust shrikes with the photon and absorb and emit the energy. This process continius, till the

until the heat moves to the next layer. The energy takes about 7 million years to moves to the next phase.

Temperature:

Here temperature remains about 7 million °C.

iii. Connective zone:

It starts where radiative zone ends. it is the layer which connects the internal part of the sun with its outer part (the atmospheric layers). Here photons stay for a while and move back to radiative zone.

2. The Atmospheric Layers of the sun

These layers are classified into following three spheres.

i. The Photosphere:

This layer starts of the connective zone. It is the layer which emmits light and transfers it to the next layers. Here temperature is slightly moderate.

ii. Chromosphere:

located above the photosphere, this layer connects the photosphere with outermost layer of the sun.

Temperature:

Here temperature remains in between. 4000°C to 6000°C.

iii. The Corona:

Final layer of the sun is corona which is also known as crown of the sun. It can be observed from distanced planets like earth.

Temperature;

Temperature remains about 1 million °C to 5 million °C.

Date _____

PART - C

What are Ceramics?

Ceramic are non-metalic and inorganic sabstance that can be found in lithosphere of the earth. As Lithosphere layer of the earth contains several solid element such as silica ~~and~~ magnisium and Aluminum they give shape while making basic structure of the cermic product. The examples of ceramic are crockery item, sanitory products, and other soil origen material

1. Types of ceramics:

i. ~~E~~arthen ware.

Raw form of soil is used to make ceramic products. During it manufacturing process, it is heated about 1200°C. As these product absorb water due to their porous shape. so, they are easily breakable. ~~E~~xample of Earthenware ceramic include Crockery Products, Parts, etc.

ii. Stoneware:

These are most advance form of cermaic and more reliable as compared with Earthen ware ceramics. like earthen ware cermaics, stoneware ceramic are also heated at the temperature above them 1200°C. Example; Sanitory products, statics, and other material are made from stone ware ceramics

iii. Proclain:

Proclain is a white cermic with transparent shape. It is the finest form of of Pottery as it is refined to the maximum extent. it is prepared by heating clay at hig temperature, mostly commony used raw material kao lenite, minerals of silica, aluminum and oxygen. common example of proclains are crockery items.

Date

IV. Nano-Ceramic.;

This is the most advanced form of ceramics. Due to their reliability, the ~~use~~ are being used in aerial industry, military, motor sector and other ~~needs~~ of general use. In nano-ceramic technology, elements like magnesium, Silicon, and Aluminum are used in their pure form.

Applications of Nano-ceramics

i. Aerial sector;

Aeroplanes, wood shields

ii. Military;

Tanks, Pam scutes,

iii. Motor sector;

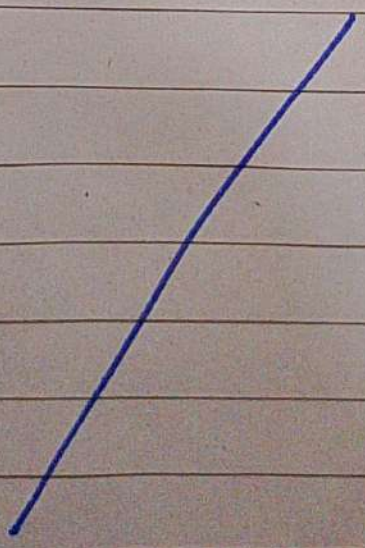
Part of cars, Electronic devices of cars,

iv. General life use;

House paints, Mobile phones etc.

Recycling possibility of ceramics:

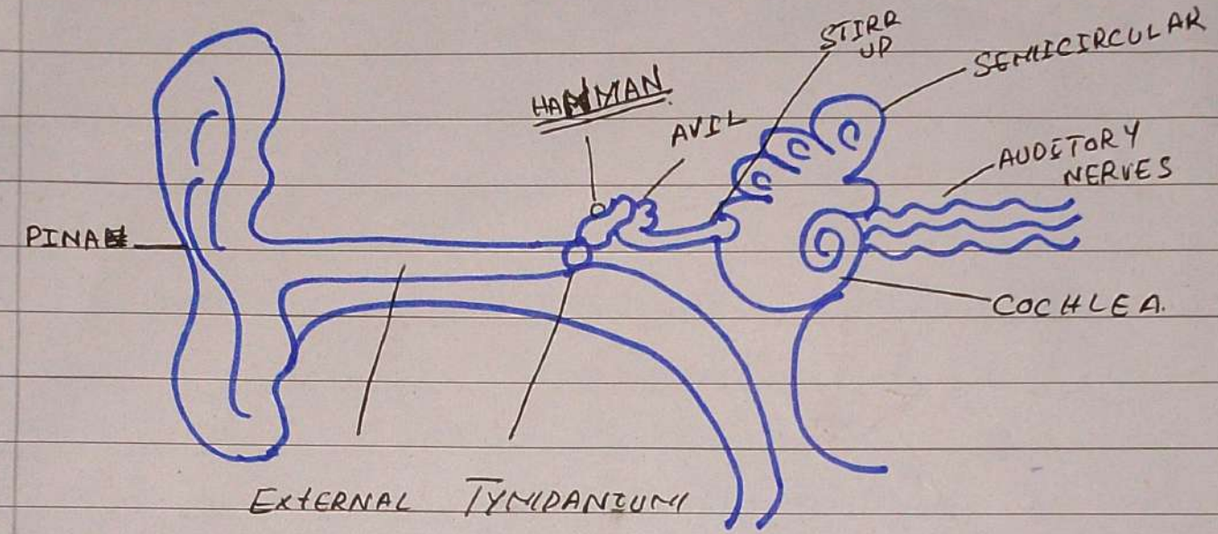
As ceramics contain elements like silica, aluminium and magnisom which can be recycled by deconstructing them by heating process. Similarly, ceramics are also can be recycled by heating them at certain temperature.



Date _____

PART-D

Struture of ~~Human~~ ~~ear~~:



EXTERNAL EAR 1

MIDDLE EAR 2

INTERNAL EAR 3

Functions

i. External ~~ear~~:

External ~~ear~~ diverts the sound waves to the Tympanium where the pressure of the sound waves is changed and vibration take place on Tympanium membran.

ii. Middle ~~ear~~:

With the help of ossicles, Tympanium membrane diverts the sound waves to the internal ear by making it so time intense

. Perilymph receives the vibration and transfers it to the chalea which stimulates the hair cell.

. III. Internal ear:

The hair ~~brain~~ cells transfer message to the brain where they recogized as sound.

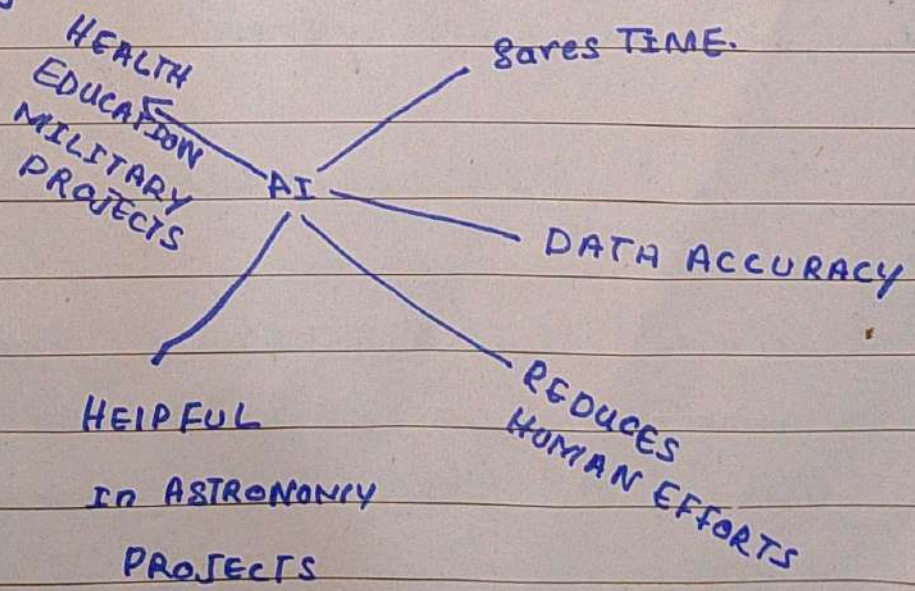
Q. No. 5

PART-a

Kiha is Artificial Intelligence?

Artificial intelligence is the self learning ability of machines. During their learning process, they have the ability to process, analyze and interpret data like a human. Today, AI has been used in different machines, like computer, Robots, satellites, missile technology etc. Due to its human like abilities AI has been taking the ~~tu~~ world of technology to the next level and saving the precious time of human being which can be used to discover unknown part of this world.

1. Benefits of AI



Date

2. Is it possibe for AI to outsmart Humans?

When it comes a question that AI is going to outsmart human, according to the experts of AI, there is a rare possibility. Beause, AI has been introduced to assist human to perform their day to day task. However, due to unethical use of AI, people are getting outsmart by themselves as the due to the over use of AI people are putting less efforts to work on academics, and Plagarism is of common.

PART-C

~~Carbo~~

Carbohydrates:

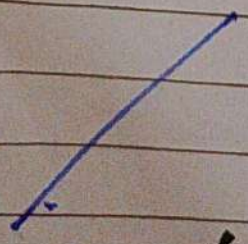
Carbohydrates are the types of macro biomolecules which provide energy to human beings to perform their day to day activities. They are also available in external sources such as bread, meat and other sugar products. Carbohydrates can be classified into further three types such as.

1. Types of Carbohydrates

i. Polysaccharides: contain chain of two or more monosaccharides linked together. e.g lactose.

ii. Disaccharides: contain two monosacch arides ~~elements~~ molecules. Ex lactose, maltose, sucrose.

iii. Monosaccharides: Glucose, Galactose and Fructose.



Date _____

PART-D

Balance Diet:

Balance diet refers to proper intake of nutrients which are required by living beings to perform their day-to-day activities. Such nutrients vary from carbohydrates, vitamins, proteins ~~and~~ amino acids, and minerals

Benefits of Balance Diet:

- It helps the heart to perform its functions properly
- It helps the living being to regulate the digestion functions of living beings
- It provides required amount of energy to the heart to perform its controlling functions in a proper way
- Balance diet also helps the blood to perform its functions like clotting, killing of germs and transfer of amino acid
- It is also beneficial for the eye while improving its vision.

Date

SECTION-II

Q NO.6

PART-a

Given Data:

Population - P1 = 18000.
Population - P2 = 221500

Required:

To Find Percentage increase = ?

Solution:

By using the Percentage increase formula

$$\% = \frac{P2 - P1}{P1} \times 100.$$

$$= \frac{221500 - 18000}{18000} \times 100.$$

$$= \frac{4500}{18000} \times 100$$

$$= \frac{4500}{18}$$

$$= 25\%.$$

The population has increased by 25 PC

R.W

225000 | 18000
180000 | 12.5
45000
25
225
450
18
9
3
1

Date _____

PART - b

Given Data:

Units	Days	Machines
600	9	20
X	12	18

Required:

To find no of units = X

Solution:

Machines : Days : units

20 : 9 : 600

18 : 12 : X

$$\frac{X}{600} = \frac{12}{9} \times \frac{18}{20}$$

$$X = \frac{6}{8} \times 600^{120}$$

$$X = 720$$

720 units will be manufactured by 18 machines in 12 days.

Date

PART – C

GIVEN DATA:

	Distance.	Time.
Car	450m	1 minute
Train	69km	45 minute.

Required:

Ratio between the speed of car and train = ?

Solution:

i. Speed of car

$S = D/t$

Distance = 450M

Time = 1 minute. × 60 = 60 seconds

$S = \frac{450m}{60}$

$S = 7.5$ m/s

Speed of car = 7.5 m/s

ii. Speed of Train

Speed of train = Distance / time

Distance = 69km = 69 × 1000

= 69000m

Tim = 45 × 60 = 2700s

Date _____

Speed = 69000 / 27000

Speed = 690/270

Speed of train = 25.56 m/s

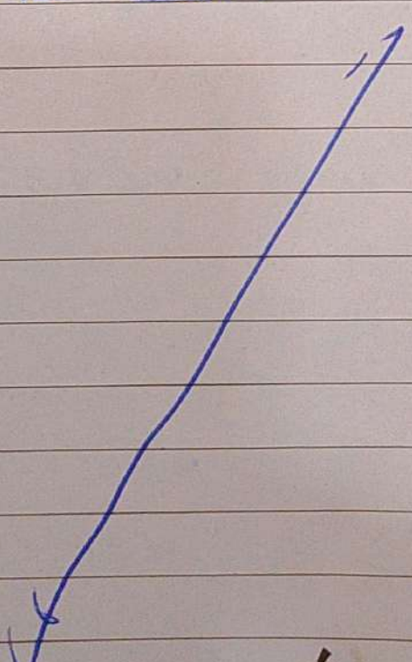
iii. Ratio between the speed of Car and train

Ratio = Speed of Train / Speed of car.

Ratio = 25.56 / 7.50

= 3.41 : 1

Train moves 3.41 times faster then the Car.



Date

Q NO. 7.

PART - 6.

Data:

Radius = r = 4cm

Required:

Circumference of the circle

Solution:

By using formula;

$= 2\pi r$.

$= 2 \times 22/7 \times 4$.

$= \frac{44 \times 4}{7}$.

$= 176/7$

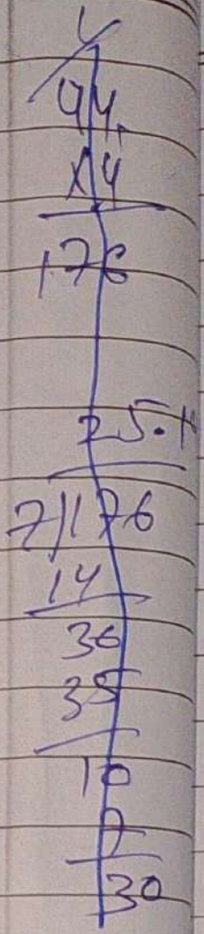
$= 25.14$ cm.

Circumference of the circle will be 25.14 cm.

PART - C

GIVEN AGES:

20, 22, 21, 21, 23



Date _____

Required:

i. Mean
ii. Median
iii. Mode.
iv. Range.

i. Mean:

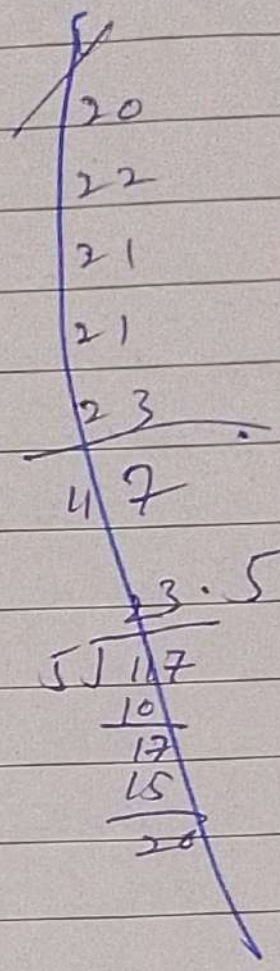
$$\text{Mean} = \frac{\text{Sum of all values}}{\text{No of values}}$$

$$= \frac{20+22+21+21+23}{5}$$

$$= 117/5$$

Mean = 23.5

Mean is equal to 23.5



ii. Median;

Middle value after rearranging data

= ~~20, 21,~~

= 20, 21, 21, 22, 23

$$\text{Median} = \frac{n+1}{2}$$

$$= \frac{5+1}{2}$$

$$= 6/2 = 3$$

Median = 21

iii. Mode

Most repetative value.

Mode = 21.

Date

iv. Range:

Maximum value − Minimum value.

= 23 − 20.

= 3

Range = 3

So,

i. Mean = 23.5

ii. Median = 3

iii. Mode. = 21

iv. Range = 3

PART - d

GIVEN DATA:

Name.	Investment	Time.
Taher	150000	@ Months
Umar	30,000	After 5 Month
Usman	45000	After 9 Month

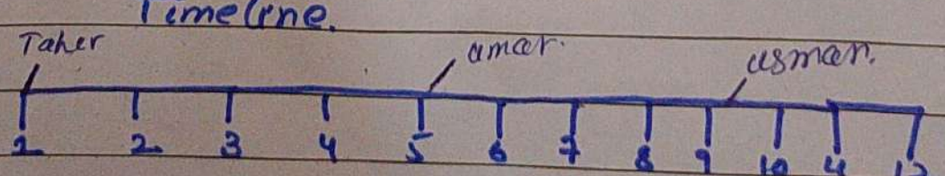
Total profit = 406,000

Required:

Share of Taher, Umar and Usman

Solution

Timeline.



Date _____

[redacted] =

Tahir = 15000 × 12 = 180000.

umar = 30000 × 7 = 210000

usman = 45000 × 4 = 180000

Tahir : umar : usman = 180000 : 210000 : 135000

= 180 : 21 : 135

= 90 : 7

= 180000 : 210000 : 180000

= 18 : 21 : 18

= 6 : 7 : 6

Total share. = 6 + 7 + 6 = 19

Tahir's share = 6/19 × 406,000. =

= 21368.42 × 6. = 128,210.52

umar's share = 7/19 × 406,000. =

= 21368.42 × 7. = 149,578.94

usman's share = 6/19 × 406,000

= 21368.42 × 6 = 128,210.52

Tahir's share. = 128,210.52

umar's share = 149.578.94

usman's share = 128.216.52

15000 × 12 = 180000

5000 × 12 = 180000

45000 × 4 = 180000