Name. Muhammad Rasheed

Mock

Subject General Science & Ability

Lmsia 33443

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Batch 60

26

Dos and Don'ts for Generaral Science & Ability Paper

Hi there, you've done well. Know that acquiring knowledge is one thing and reproducing it in paper acccording to what's asked is another. There are a few things I would like to highlight.

1. A 5 marks part requires 2 sides(not more than that) of a paper. Know that there can be two or three parts of a question and their marks are divided accordingly. So, address all of them in a just manner.

2. Focus on time management. You get 35 minutes to solve one question and about 8 minutes per 5 mark part. Manage your time accordingly.

3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.

4. Your handwriting and neatness can be really impactful. Avoid cutting and overwriting.

5.Focus on your spellings and your grammar. Here, in GSA there's no deduction in marks but your expression will definitely create an impact.

6. In ability portion, give explanation for analytical ability question in words. You need to understand that a 5 mark part requires all steps written and explained. Good luck for CSS 2025. You're gonna rock in sha Allah. :)

G8 MOCK # 2   Date _____

PART - II
SECTION - I

Q. No. 4

PART - a

Answer:

What are renewable Energy 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 o
- 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 fill the demand of energy of Pakistan. According to one estimation Pakistan has the capacity to produce about I lac MW from its solar energy resources.

Example:
- Thar Power Project
- Bhawalpur Project; Quaid-e-Azam solar plant.

Hijazi

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 um/h. However, fast flow of winds can cause damage to the turbines.

Example:

- Jamshoro wind Energy Projet in sindh.
- Gawadar wind Energy Projet 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.

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

Total Energy Requirment of Pakistan is about 22000 mw. However, the this figure changes with the change of seasons. In order to reduce energy shortfall and produce energy for the future use, Pakistan need adopt following policies:

Give viable solutions

i. Quick shift towards Green Energy
ii. Reduce non-renewable Energy 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. There 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 stratore. Each part has their own further

THE INTERNAL LAYERY

THE ATMOSPHERIC LAYER

ZONE
CONVECTIVE
RADIATIVE → ZONE
THE CORE

———— THE CRONA

———— CHROMOSPHERE

———— PHOTOSPHERE

DIAGRAM: The STRUCTURE
07 the sun.

1. The Internal ~~Atmospheric~~ layers:

The atmospheric layers of the sun are classified into. Further three parts.

i. The Core:

It is the innermost layers of the sun. Nuclear. Fusion reaction also takes place on core of the sun. After nuclear fussion 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 partcle like dust strikes with the photon and absorb and emut the energy. this process continus, till the

until the heat moves to the next layer. The energy takes about 7 million years to move 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 stars 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 1000°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 4 million °C to 5 million °C.

PART - C

What are Ceramics?

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

1. Types of ceramics:

i. Earthen ware.

Raw form of soil is used to make, ceramic products. Dureng it manufactring process, it is heated about 1200°c. As these product absorb water due to their porous shape. so, they are easily breakable. Example of Earthenware ceramic include Crockery products, Ports, etc.

ii. Stoneware:

These are most advance form of Cermaic and more reliable as compared with earthen ware ceramics. like earthen ware ceramics, stoneware ceramic are also heated at the temperature above then 1200°c. Example; sanitory products, statues, and other material are made from stone ware ceramics

iii. Proclaun:

Proclaun is a white cermic with transpanet shape. it is the finest form of of Pottery as it is refineel to the maxiumom extent. it is prepared by heating clay at hig temperature. mostly commony used raw material leao lenite, minerals of silica, aluminom and oxygen common example of proclaens are crockery items.

IV. Nano-Ceramic:

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

. Applications of Nano-ceramics

i. Aerial setor;
   Aeroplanes, wind shields

ii. military;
   Tanks, Parascuter,

iii. Motor scutor;
   Paint of cars, Electronic devices of cars,
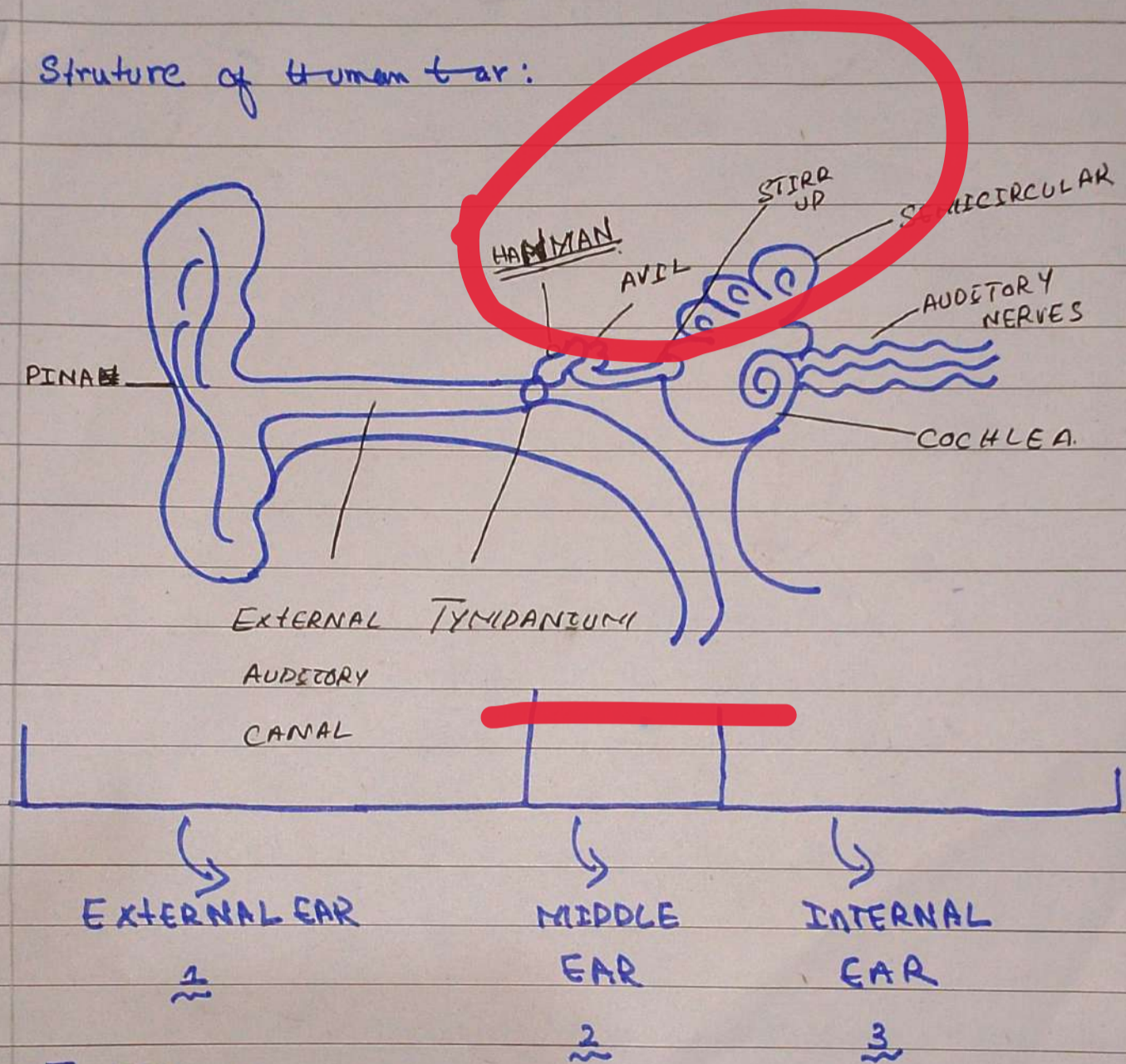
iv. General life use;
   House paints, Mobile phones etc.

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.

Properly address all parts of your question

PART-D

Struture of Human Ear:

PINAE

EXTERNAL TYMPANIUM

AUDITORY

CANAL

EXTERNAL EAR
1

MIDDLE
EAR
2

INTERNAL
EAR
3

HAMMAN

AVIL

STIRR UP

SEMICIRCULAR

AUDITORY NERVES

COCHLEA.

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 moving it so time intense

- Perilymph receives the vibration and transfers it to the cholea which stimulates the hair craft.

III. Internal Ear:

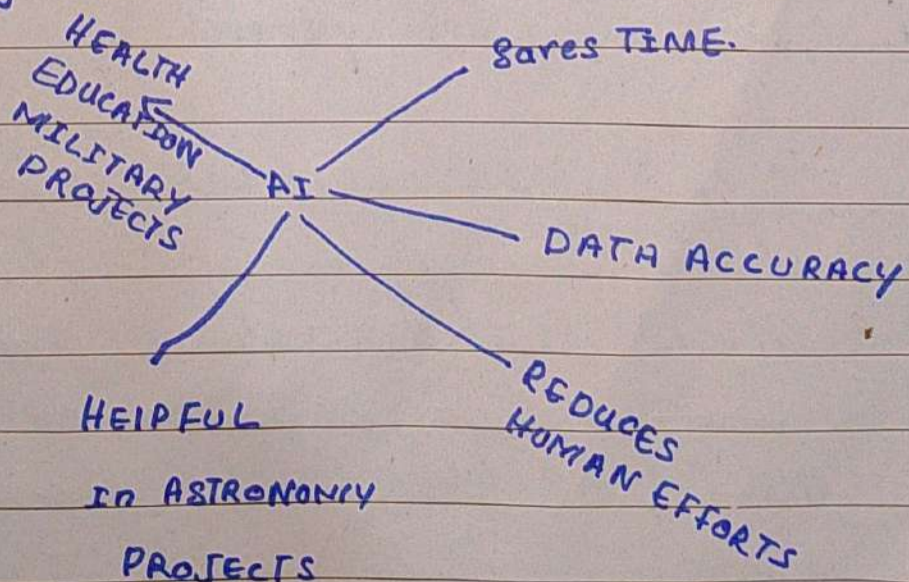The hair cells transfer message to the brain where they recognized as sound.

Q. No. 5
PART - a

What 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, sattelites, missile technology etc. Due to its human like abilities A I has been taking the tw world of Tehnolog 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

HEALTH
EDUCATION
MILITARY
PROJECTS
AI
SAVES TIME.
DATA ACCURACY
REDUCES HUMAN EFFORTS
HELPFUL IN ASTRONOMY PROJECTS

ESTIMATE

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. Because, AI has been introduced to assist human to perform their day to day task. Moreover, due to unethical use of AI, people are getting outsmart by themselves as t/f. due to the over use of AI people are putting less efforts to work on academia, and plagiarism is of common.

Form a proper argument

PART-C

~~CARBO~~

Carbohydrates:

Carbohydrates are the types of ~~biomolecules~~ molecules 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. Carbohydrate can be classified into further three types such as.

Proper explanation is required

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~~ molecule e.g lactose, maltose, sucrose.

iii. **Monosaccharides:** glucose, galactose and fructose.

PART-D

Balance Diet :

Balance diet refers to proper entake 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

Add a pie chart

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.

Give examples etc

SECTION – II

Q.NO.6

PART – a

Given Data:

Population = P_1 = 18000.
Population = P_2 = 221500

Required:

To Find Percentag enerase = ?

Solution:

By Using the Percentag enerase
Formalula

$$u = \frac{P_2 - P_1}{P_1} \times 100.$$

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

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

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

$$= 25\%.$$

The population has increasel by 25 PC

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 ↓

$$\frac{X}{600} = \frac{\overset{\overset{1}{\cancel{2}}}{\cancel{4}}}{\underset{\underset{1}{\cancel{8}}}{\cancel{9}}}\cancel{12} \times \frac{\overset{6}{\cancel{18}}}{\underset{5}{\cancel{20}}}$$

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

$$\boxed{X = 720}$$

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

PART — C

GIVEN DATA:

	Distance. ~~Speed~~	Time.
Car	450m	1 minute
Tran	69km	45 minute.

& Required:

Ratio between the speed of car and Train = ?

Solution :

i. Speed of car

$S = D/t.$

Distance = ~~450m~~ 450M

Time = 1 minutue. × 60 = 60 seconds

$S = \frac{9\cancel{8}\cancel{7}}{\cancel{45}\cancel{18}}$

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

$$\boxed{Speed \ of \ car = \overset{7.5}{\cancel{8}} \ m/s}$$

ii. Speed of Train

Speed of Train = Distance/Time.

Distance = 69km = 69×1000

= 69000m

Tim = 45×60 = 2700 s

Speed $= \dfrac{69000}{27000}$

Speed $= 690/270$

$\boxed{\text{Speed of train} = 25.56 \text{ m/s}}$

iii. Ratio between the speed of Car and train

~~Speed~~

Ratio $=$ Speed of Train / speed of car

Ratio $= \dfrac{25.56}{7.05}$

$= 3.41 : 1$

~~II IIIII~~

Train moves 3.41 times faster then the Car.

QNO. 7.

PART - b.

Data :

Radius = $r = 4\,cm$

Required :

Circumference of the circle.

Solution :

By using formula:

$$= 2\pi r$$

$$\text{c} = 2 \times \frac{22}{7} \times 4$$

$$\text{c} = \frac{44 \times 4}{7}$$

$$\text{c} = 176/7$$

$$= 25.14\,cm$$

Circumference of the circle will be 25.14 cm.

PART - C

GIVEN AGES:

20, 22, 21, 21, 23

44
× 4
———
176

25.14
7)176
  14
  ——
  36
  35
  ——
  10
   7
  ——
   30

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

$$= 21, 21,$$

$$= 20, 21, 21, 22, 23$$

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

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

$$= 6/2 = 3$$

Median = 21

iii. Mode

Most repetative value.

Mode = 21.

(margin calculations)
```
20
22
21
21
23
4 7

   23.5
5 ) 117
    10
    17
    15
    20
```

iv- Range:

$$\text{Maximum value} - \text{Minimum value}$$

$$= 23 - 20$$

$$= 3$$

$$\boxed{\text{Range} = 3}$$

So,

i. Mean = 23.5

ii. Median = 3

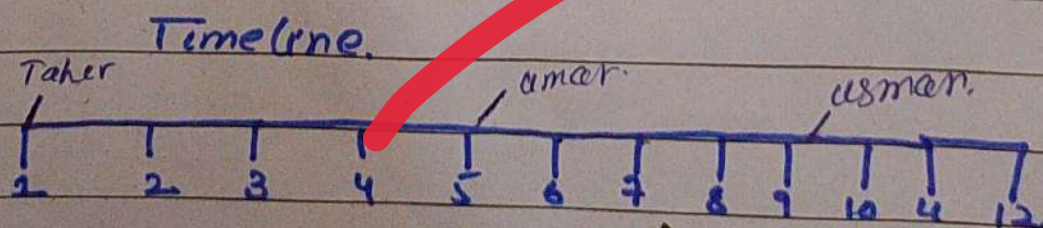iii. Mode = 21

iv. Range = 3

PART - d

GIVEN DATA:

Name	Investment	Time
Taher	15000	6 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.

Taher   amar.   usman.

1 2 3 4 5 6 7 8 9 10 11 12

Tahir = 15000 × 12 = 180000.

umar = 30000 × 7 = 210000

usman = 45000 × ~~4~~ = ~~180000~~

Tahir : umar : usman = 180000 : 210000 : 135000

= 180 : 21 : 135

= 40 : 7

= 180000 : 210000 : 180000

= 18 : 21 : 18

= 6 : 7 : 6

Total share = 6 + 7 + 6 = 19

Tahir's share = $\dfrac{6}{19}$ × 406,000 =

= 21368.42 × 6 = $\boxed{128,210.52}$

umar's share = $\dfrac{7}{19}$ × 406,000 =

= 21368.42 × 7 = $\boxed{149,578,94}$

usman's share = 6/19 × 406,000

= 21368×42×6 = $\boxed{128,210.52}$

Tahir's Share = 128,210.52

umar's share = 149.578.94

usman's share = 128.216.52

(margin calculations)

15000
× 12
180000

15000
× 12
180000

45000
× 4
180000