M T W T F S DATE:

Q.NO.2

(a)

Introduction:

AI has been changing almost all the spheres of life in 21st century. for efficiency and effectiveness, machines with intelligent codes are trusted more than humans inherent lackings. In this regard, healthcare is being incorporated with AI to make it more feasible and affordable along with its efficiency. There are several benefits that range from early warnings, patient-specific treatment, robotics within medical center, and proper medical diagnoses. However, there are challenges too. They revolve around AI ethics, and in case of failure who is responsible? This lack of unambigous responsibility further makes its use limited and invisible. Its impacts on patient care, though, have both positive and negative factors. Similarly, medical diagnosis is not void of possible impacts that AI will inculcate upon its use.

Benefits of implementing AI in health care:

M T W T F S DATE:_____

i) AI chips on patient's body can provide early warnings of any ensuing illness:
These small chips can monitor micro and mavo molecular movements within body tissues, and any threat to health will come to notice before it converts into illness.

ii) AI can make patient-specific prescription, making treatment more effective:
As AI is informed of medical history of the patient, it diagnoses even the smallest cellular movements to prescribe what is deficient and what is exceeding, making treatment effective.

iii) Use of robotics in medical centers can make work more efficient:
Robotics can substitute nursing by humans, making it time and work efficient. within surgics, robots can work under human surveillance.

iv) Use of AI applications can substitute the need of doctors for medical diagnoses:
Today, Chatgpt is commonly used for medical diagnoses if its not grave. It can provide prescription for minor illness like fevers cough and headache.

v) AI can help in disciplining daily life to remain protective from any potential disease:

AI can create strict routine, subjective

to the person. It can be used to live a healthy-life and remain vigilent of ones biology.

The Challenges of implementing AI in healthcare:

i) The challenge of AI ethics impedes its extensive usage:

AI ethics means moral contradictions on how and where AI must be used. How AI must be is there also included.

ii) Lack of responsibility mechanisms in case of AI failure produces legal challenges: Legally, for every action or failure to act someone is responsible. In case of AI failure, how machine can be legally tried, remains a legal dilemma.

iii) The threat of information leakage in the wake of recent surge in hacking, leading to challenges of privacy issue:
The rise of cyber crimes ~~is~~ challenge the extensive use of AI, as the over digitization of life can threaten the steal of sensitive information like one's medical status.

iv) Lack of human emotions can challenge the psychological coldness of AI and machines:

Several diseases have direct links to psychological state of a patient. Psychology of homosapiens is still overly connected with human emotion, lack of

M T W T F S DATE:_____

Impact of AI on patient care

i) Continuous monitoring ; effective care
ii) Human failures are discarded with use of robotics ; AI can never get bored.
iii) However, lack of human emotions can have negative impact on patient's psychological state.

Impact of AI on medical diagnosis

i) AI can make medical diagnosis more efficient by being patient-specific
ii) Extensive knowledge feeded with codes relief AI from lack of information.
iii) Once stored, Medical history can never be forgotten thus making AI sharp in remembering and prescribing treatment.

Conclusion:

As with every sphere of life, AI, today, is incorporated in healthcare to make it more efficient and effective. Although there are challenges, its beneficial impacts on patient care and medical diagnosis ~~can never total in~~ its make its use extensive, all over the world, and efficient.

c.

Introduction:

Global warming is defined as the increase in average temperature of the Earth. It is the direct effect of Green house effect, which can be a natural or man-made increase in its scale. The Natural Green house effect is although necessary; however, the increased Green house effect due to man-made green house emissions causes global warming, which have numerous effects on the global health.

Causes of global warming:

i) Green house gas emissions: CO_2, CO, SO_2, NO_x
ii) Deforestation: forests are natural carbon sinkers. Destroying forests decrease absorption of carbon
iii) water pollution: Oceans are natural carbon sinkers. Polluting water decreases its capacity.
iv) Population increase: Rapid urbanization increase pollution in air and rise demands of energy.

Effects of global warming:

i) Extreme weather patterns: increase in floods, droughts, volcanos, tsunami, cyclones.
ii) Heat strokes: Human deaths due to increase in temperature
iii) Rise of sea level: coastal areas are

M T W T F S DATE:

iv) Glacial melting: It cause floods and decrease in fresh water reservior.

Humen activities in contributing to global warming:

i) Industrial gases and wast: CO_2, CO, SO_2
ii) Agricultural gases and wast: Pesticides, CHy
iii) vehicle's gases
iv) fossil fuel burning for energy
v) Oil spills in oceanic waters.
vi) Deforestation
vii) uncontrolled urbanization and population boom

Solutions to mitigate impacts:

i) Reforestation must be done.
ii) Renewable energy resources must be used
iii) Electronic cars and public transport should ride.
iv) Pollution mangement mechanism be formed
v) Industrial gases and wast must be recycled, and reused as a fuel.

Conclusion:

Global warming is a man-made phenomenon that can be mitigated if right steps are taken immediatly. It has potential to destroy the known life on earth. As stephen Hawking famously said,

" It is not nuclear war, but climate change that will destroy life on earth"

DATE:

M T W T F S

Q.No. 3

(d)

Introduction:

Earth's inner structure is made of different layers each having different composition and different functions. Moreover, Oceanic crust and continental crust have different densities whose plate tectonics explain several phenomena under water. These plate tectonics explain how Earth's crust is structured, and moves.

Structure of Earth:

Earth's interior is made up of following layers:

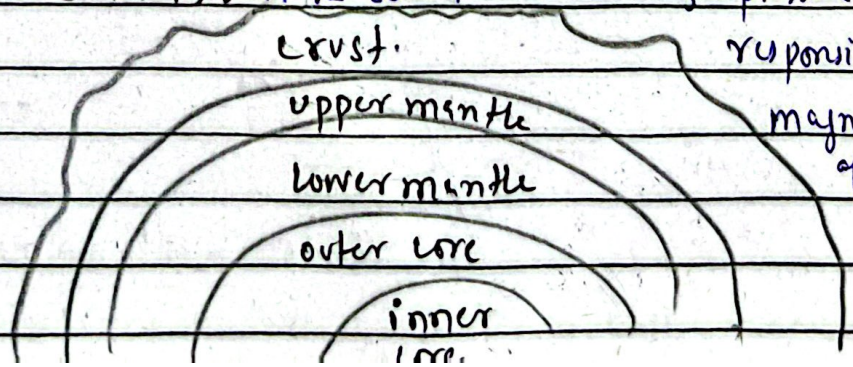
i) crust: upper most layer. It is solid and has it's two types: oceanic and continental.

ii) upper mantle: The upper layer of mantle. It is solid and together with crust it forms lithosphere

iii) lower mantle: It is dense liquid and high in temperature

iv) Outer core: It is too in liquid form and conducts convection currents from inner core to lower mantle

v) core (inner): It is solid due to high pressure. It is responsible for magnetic field of Earth.



M T W T F S DATE:_____

Difference between Oceanic and continental crust.

Oceanic crust	Continental crust
(i) It is denser	i) It is relatively less dense
(ii) Its depth is lower	ii) Its depth is higher
iii) It's under ocean, forming oceanbed	iii) It is main land, forms continents
iv) It is hotter because close to mantle	iv) It is relatively cooler because far from mantle

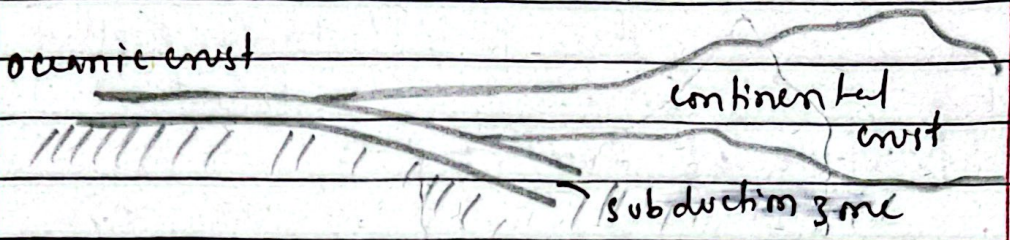
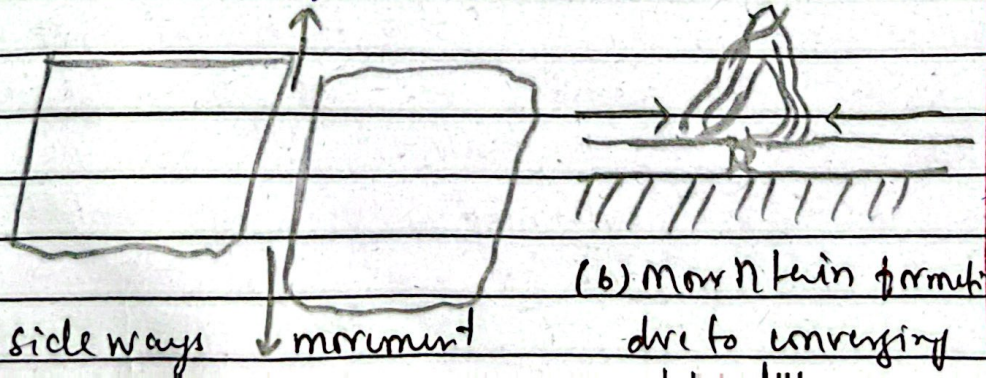


Plate tectonics: shaping the Earth's surface

Earth crust is divided into several plates that keep moving over molten mantle. The Mantle's movement is due to convection current inside Earth's interior. There are major 9 tectonic plates. When these plates move they can create converging, diverging or sideways boundries. When plates thicken Mountains can form, rifts, and volcanoes can erupt.



(a) sideways movement

(b) Mountain formation due to converging

M T W T F S DATE:

Conclusion:

Earth's interior is responsible for Earth's magnetic field, temperature and gravity. Its layers are divided in three major parts. The upper most layer crust is where life (known) mostly exist. Its two types are different from each other. Furthermore, plate tectonic movement is responsible for how Earth's surface is shaped. Different boundries cause different effects and thus reshape our understanding of Earth's interior secrets.

M T W T F S DATE:

Q No 5

(a) Data:

Below 8 years of age = 20%.x

no. of students (total) = x

no. of students of age 8 years = 48

no. of " above age 8 years = $\frac{2}{3} \times 48 = 32$

Solution:

Total no. of students = x = 32 + 48 + 20%.x

$80 + 20\%.x = x$

$x - 20\%.x = 80$

$x(1 - 0.2) = 80$

$x(0.8) = 80$

$x = 80 \div 0.8$

$x = \frac{80^{10}}{8_1} \times \frac{10}{1}$

$x = 100$

total no. of students = x = 100 Ans.

M T W T F S DATE:

(b) Data:

father age = f

Rashid's age = R

Given => $f = 3R$

after Eight years => $f+8 = 2\frac{1}{2}(R+8)$

after further Eight years what would be f times of R =?

Solution:

$f = 3R \longrightarrow (1)$

$f+8 = 2\frac{1}{2}(R+8) \longrightarrow (2)$

Solving (2):

$f+8 = \frac{5}{2}(R+8)$

$f+8 = \frac{5R}{2} + 20$

$f = \frac{5R}{2} + 12$

$f = \frac{5R+24}{2} \longrightarrow (3)$

∴ putting (1) in → (3)

$3R = \frac{5R+24}{2}$

$6R = 5R+24$

$R = 24 \longrightarrow (4)$

∴ putting (4) in (1)

$f = 72$

M T W T F S DATE:

R = 24 and f = 72
After 8 year ⇒ R = 32, f = 80
After further 8 years ⇒ R = 40, f = 88

thus, $\frac{88}{40} \rightarrow \frac{11}{5} \Rightarrow 2\frac{1}{5}$

After further 8 years father will be $2\frac{1}{5}$ of Rashid's age.

Ans.

(c) Date:

Total no. of diff chances of two dice = $6^2 = 36$
total no. of prime sum of chances = x
probability = $x/36$.

Solution:
n = 36
for x:

(1,2), (2,1), (2,3), (3,2), (1,1), (5,2), (3,4), (6,1)
(2,5), (4,3), (1,6)

for 3, for 5, for 2, for 7

(6,5), (5,6)

for 11

Total = 13
probability = $13/36$

M T W T F S DATE:

(q) Data:

avg age of team = y

avg age of team - captain & WK = x

given $\Rightarrow x+1=y$

age of captain + WK = 26 + 3 = 29

Solution:

$x+1=y \longrightarrow (1)$

$y = \dfrac{29 + \text{sum (of other 9 players)}}{11} \longrightarrow (2)$

$x = \text{sum of 9 players} / 9$

$9x = \text{Sum (of 9)} \longrightarrow (3)$

putting (3) in (2)

$y = \dfrac{29 + 9x}{11} \longrightarrow (4)$

putting (1) in (4)

$x+1 = \dfrac{29+9x}{11}$

$11x + 11 = 29 + 9x$

$2x = 29 - 11$

$2x = 18$

$x = 7 \longrightarrow$ thus $y = 8 =$ avg age of team

M T W T F S DATE:

Q No. 7: B

(a) Data:

Given eqution:

$$5\%.A + 4\%.B = \frac{2}{3}\left[6\%.A + 8\%.B\right] \rightarrow (1)$$

find A:B.

Solution:

Solving (1):

$$\frac{5A}{100} + \frac{4B}{100} = \frac{2}{3}\left(\frac{6A}{100} + \frac{8B}{100}\right) \quad \therefore \left[\%. = \frac{1}{100}\right]$$

$$\frac{5A+4B}{100} = \frac{2}{300}\left(6A+8B\right)$$

$$5A+4B = \frac{2}{3}(6A+8B)$$

$$5A+4B = 4A + \frac{16}{3}B$$

$$A = \frac{16}{3}B - 4B$$

$$A = \frac{16B-12B}{3}$$

$$A = \frac{4B}{3}$$

$$3A = 4B \Rightarrow A/B = 4/3 \Rightarrow \boxed{\text{thus } A:B = 4:3}$$

M T W T F S DATE:

(B)

(c) Data:

A, B, C, D ⇒ ratio of money = 5 : 2 : 4 : 3

C = 1000 + D

B = ?

money = x

Solution:

As total share-sum (% ratio) = 14

C's share = 1000 + D's ⟶ (1)

$C = \frac{4}{14} \times x$

$D = \frac{3}{14} x$

Putting in (1)

$\frac{4}{14} x = 1000 + \frac{3}{14} x$

$\frac{4}{14} x = \frac{14000 + 3x}{14}$

$4x = 14000 + 3x$

$x = 14000$

$B = \frac{2}{14} \times \overset{1000}{14000} \Rightarrow$ **2000 = B's share**

M T W T F S DATE:

(d) Date:

father's age = 38 years
Son's age = x

As per given it must be true that:

$\Rightarrow 38 - x = x$

Son's age five years back = $x - 5$

Solution:

$38 - x = x$
$38 = 2x$
$x = 19$

Son's age five years back = $19 - 5 = \boxed{14}$

(b) Date:

Number = A = $\underbrace{xy}_{\text{unit}}$ (ten's)
Given = $y = x + 2$
$= A(x+y) = 144$
Solution:
possible numbers:

x	y
1	3
2	4
3	5
4	6
5	7
6	8
7	9

iterative method:
$13(1+3) \neq 144$
However;
$24(4+2) = 144$ $\boxed{A = 24}$
$24 \times 6 = 144$