

Q: 6

Section B

Ans

a)

Data

Total amount to be divided = ₹370

second part = $\frac{1}{4}$ x 3rd part

Ratio between 1st and 3rd part = 3:5

Solution

Suppose x , y and z
are respective parts

Now,

according to data,

$$y = \frac{1}{4}xz$$

$$y = \frac{z}{4} \rightarrow \textcircled{1}$$

$$\frac{x}{z} = \frac{3}{5} \rightarrow \textcircled{2}$$

As we know,

$$370 = x + y + z \rightarrow \textcircled{A}$$

Now by putting values from
eq. (1) and (2), we get

$$370 = x + \frac{z}{4} + z$$

again

$$370 = \frac{3z}{5} + \frac{z}{4} + z$$

$$370 = \frac{12z + 5z + 20z}{20}$$

$$370 = \frac{37z}{20}$$

$$z = \frac{370 \times 20}{37}$$

$$z = 200$$

From eq: (1) by putting value of 'z'

$$y = \frac{z}{4} = \frac{200}{4}$$

$$y = 50$$

From eq: (2)

$$x = \frac{3z}{5} = \frac{3 \times 200}{5}$$

$$x = 120$$

Hence,

three parts are:

₹120, ₹50, ₹200 respectively

(b)

Data

Required fee = ₹800

Borrowed money from brother
= 20%

Borrowed money from mother
= 30%

Money he had = ₹200

Money needed further = ??

Solution

To get required money, we will subtract all available money from 800

$$\therefore 800 - (20\% \text{ of } 800 + 30\% \text{ of } 800 +$$

200)

$$= 800 - 160 - 240 - 200$$

$$= 200$$

Hence, he needs Rs. 200 to pay his bees.

c)

Data:

1st bag contains balls = 3 red + 7 black

2nd bag contains balls = 4 red + 6 black

3rd bag contains balls = 4 red + 6 black

Probability of red ball from

3rd bag = ?

Solution

$$\text{Probability (E)} = \frac{n(E)}{n(S)}$$

No. of possible outcomes

$$\text{that red ball comes} = \frac{11}{30}$$

probability of occurrence of

$$\text{red ball from 3rd bag} = \frac{4}{10}$$

$$= \frac{11}{30} - \frac{4}{10}$$

$$\frac{11}{30} \quad \text{Ans}$$

(d)

Data

Duration of changes in traffic signals

24 sec, 36 sec, 72 sec

Simultaneous changes occurred at 8:20:00 hrs
time of changing again = ?

Solution

In order to know common time of changing, LCM should be found out

$$\begin{array}{r} \therefore \\ 2 \overline{) 24-36-72} \\ 2 \overline{) 12-18-36} \\ 2 \overline{) 6-9-18} \\ 3 \overline{) 3-9-9} \\ 3 \overline{) 1-3-3} \\ 1-1-1 \end{array}$$

$$2 \times 2 \times 2 \times 3 \times 3 = 72 \text{ sec}$$

Hence,

change of 72 sec i.e. 1 min + 12 sec

\therefore

Signal again acts red simultaneously
at 8:21:12 hrs

Q: 8

Ans: (a)

Data

1st half of journey, car speed
= 40 km/h

2nd half of journey, car
speed = 60 km/h

Average speed = ?

Solution

$$\text{Average speed} = \frac{\text{total speed}}{2}$$

$$= \frac{40 + 60}{2}$$

$$= \frac{100}{2}$$

$$= 50 \text{ km/h}$$

Hence, average speed of
car = 50 km/h

(b)

Data:

ROSE is coded = 6821

CHAIR is coded = 73456

PREACH is coded = 961473

SEARCH is coded = ?

Solution

From above data,

R → 6

O → 8

S → 2

E → 1

C → 7

A → 4

H → 3

I → 5

P → 9

Hence,

SEARCH → 214673

↳

Data:

'A' is brother of 'B'

'B' is sister of 'C'

'C' is brother of 'D'

'D' is related to 'A' = ?

D is a male

Solution

As per data,

A $\xrightarrow{\text{brother}}$ B

B $\xrightarrow{\text{sister}}$ C

C $\xrightarrow{\text{Father}}$ D

Hence,

D $\xrightarrow{\text{Nephew}}$ A

'D' is nephew of 'A'

(D)

Data:

Kashmala traveling to west = 35 km

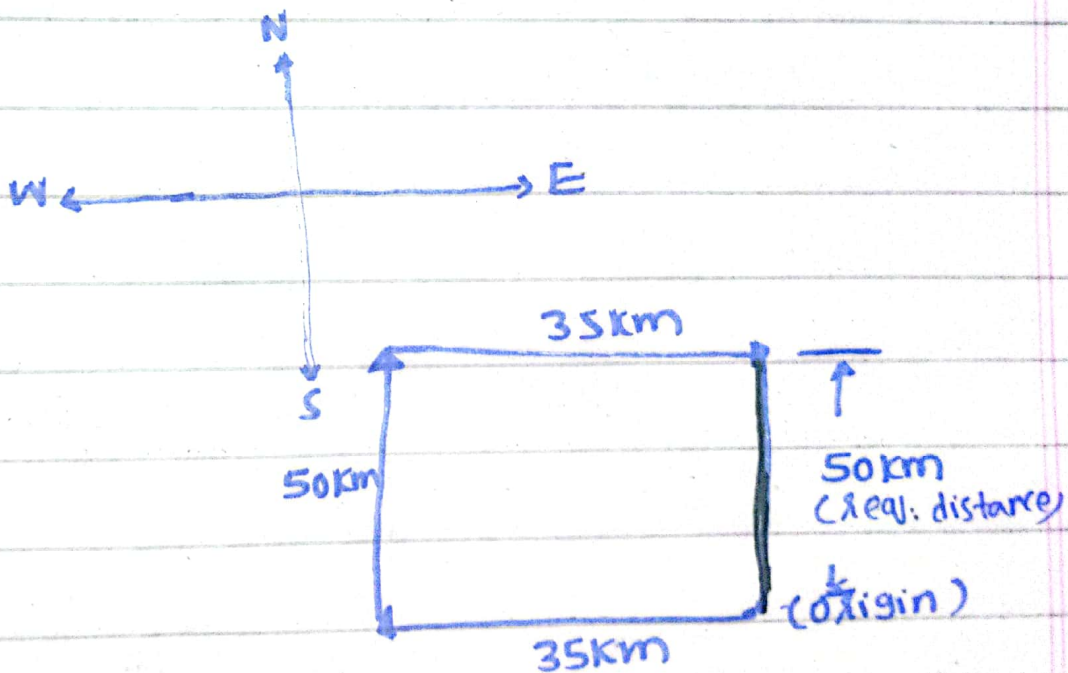
Turning right = 50 km

another turn to right = 35 km

Distance from origin = ?

Solution

As per given data,



Hence, her distance from origin
is = 50 km

12
(Section A)

Q: 5

Ans:

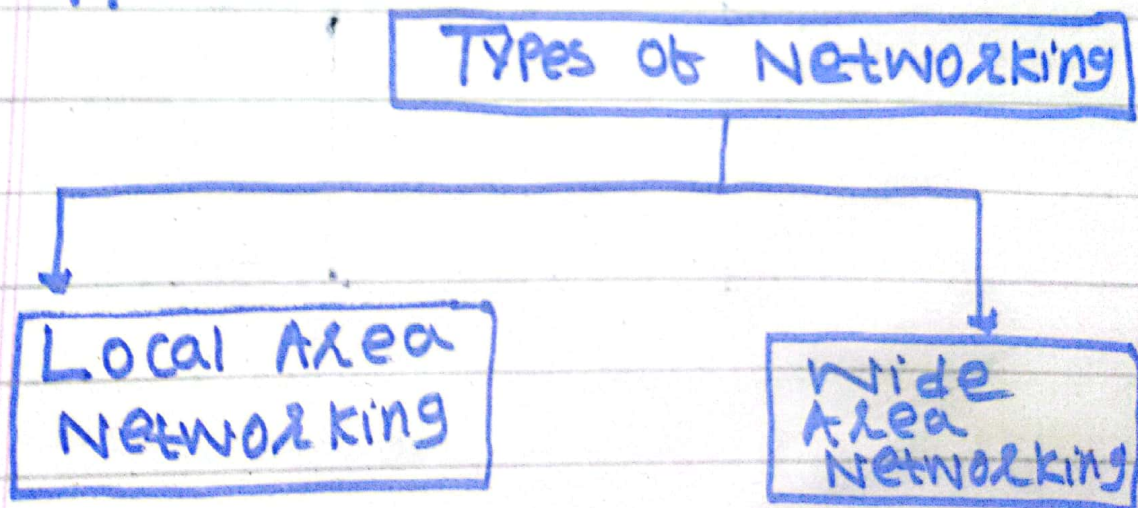
a)

1. Networking

The networking is widely used term in the field of information technology. It can be defined as a system involving sharing of ~~computer~~ common computer data and information to more than two or two location simultaneously.

It may be of two types:

1.1



(b)

i) Artificial Intelligence:

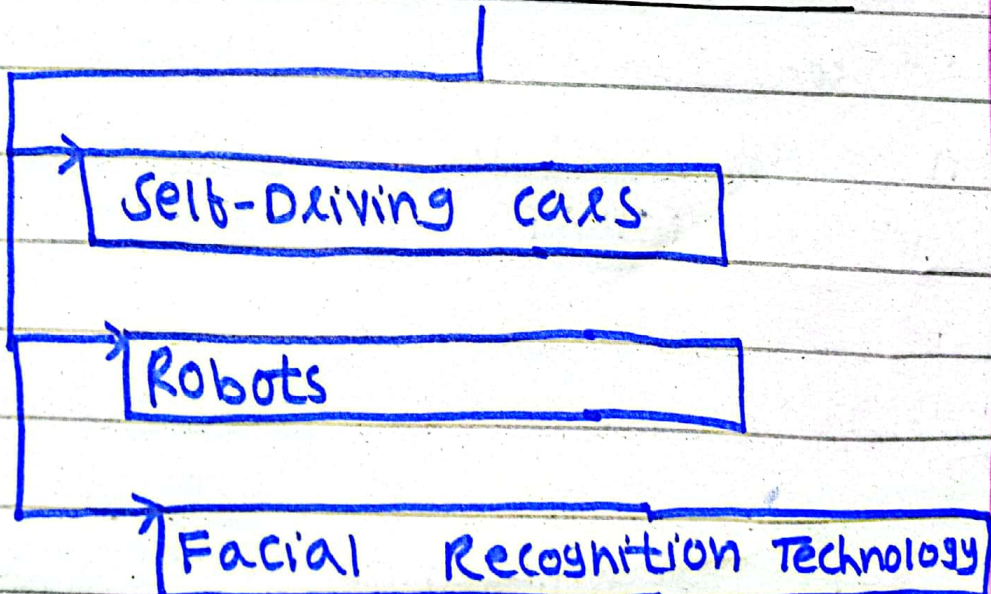
Artificial Intelligence is a term connoting the ability of machine to replicate intelligence of humans.

It can be defined as a system which accepts input data, learns from it, interprets from it and uses to undertake tasks assigned to it.

A. Origin of Artificial Intelligence:

John McCarthy is known as father of Artificial Intelligence. The AI appeared as discipline in 1950.

B. Manifestations of AI



ii) Pros and cons of Artificial Intelligence:

Following are some major pros and cons of Artificial Intelligence:

A. Pros of AI:

a) It has made manufacturing and processing work easy through Robotic system.

b) Revolution in transports is taking place around the world owing to self-driving cars and drones.

c) It has enabled students, researches and other professionals to search data and information in easy way using chatbots such as OPEN AI's ChatGPT

d) It has brought a significant transformation in medicine through e-medicine facility and

diagnosis of diseases using robots.

e) It has also modernized governance through a real time smart city projects

B. Cons of AI

a) It is feared that more automation will result in joblessness.

b) More sophisticated automated weapon may decelerate humankind's progress.

c) Facial recognition technology can be used for exploiting privacy.

d) It may harm human intellectual capabilities with advanced chatbots.

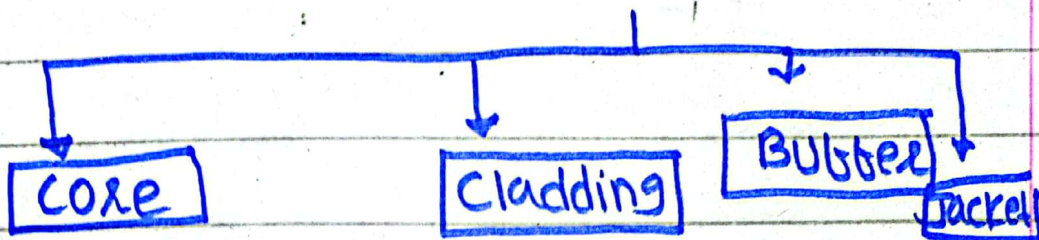
e) It may expose humans to cybersecurity risks.

c

i. HOW is 'Optical Fiber' constructed?

Optical fiber is constructed using various materials, significantly glass and plastics.

A Different parts of Optical Fiber:



a) Core: It is central part of optical fiber where light enters into the fiber.

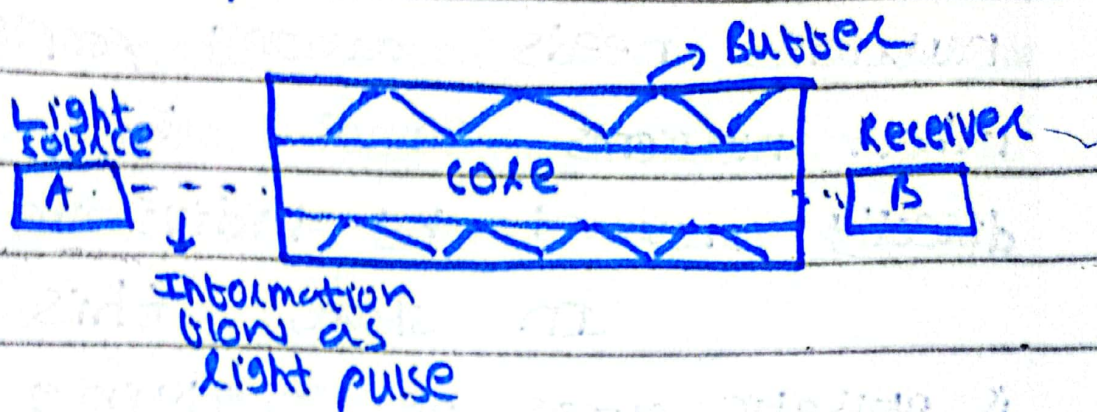
It is usually made of glass.

b) Cladding: It protects core and resists light from leaving core.

It is made from either glass or plastics.

c) Buffer: It is made of gr plastics and safeguards cladding.

d) Jacket: It is type of covering intended for protecting all parts of optical fiber. It is just casing for all parts of optical fiber.



ii) How is optical fiber helpful in transmitting electromagnetic radiations?

It is very useful in transmitting electromagnetic radiation. It does so by sending information from original source through light pulse in form of electromagnetic radiations. Finally, through core light passes and reaches to receiver.

d)

A. Bioavailability of

Nutrients:

It is the phenomenon enabling to fulfill nutrients needs among people when nutrients cannot be directly consumed by individuals.

In short, this is synthetic process of supplying nutrients in a body.

i) Applications of

bioavailability of nutrients:

a) Different nutrients in the form of medicine is consumed to supply nutrients in a body.

b) Maintaining ^{normal} functions of body with bioavailability of nutrients.

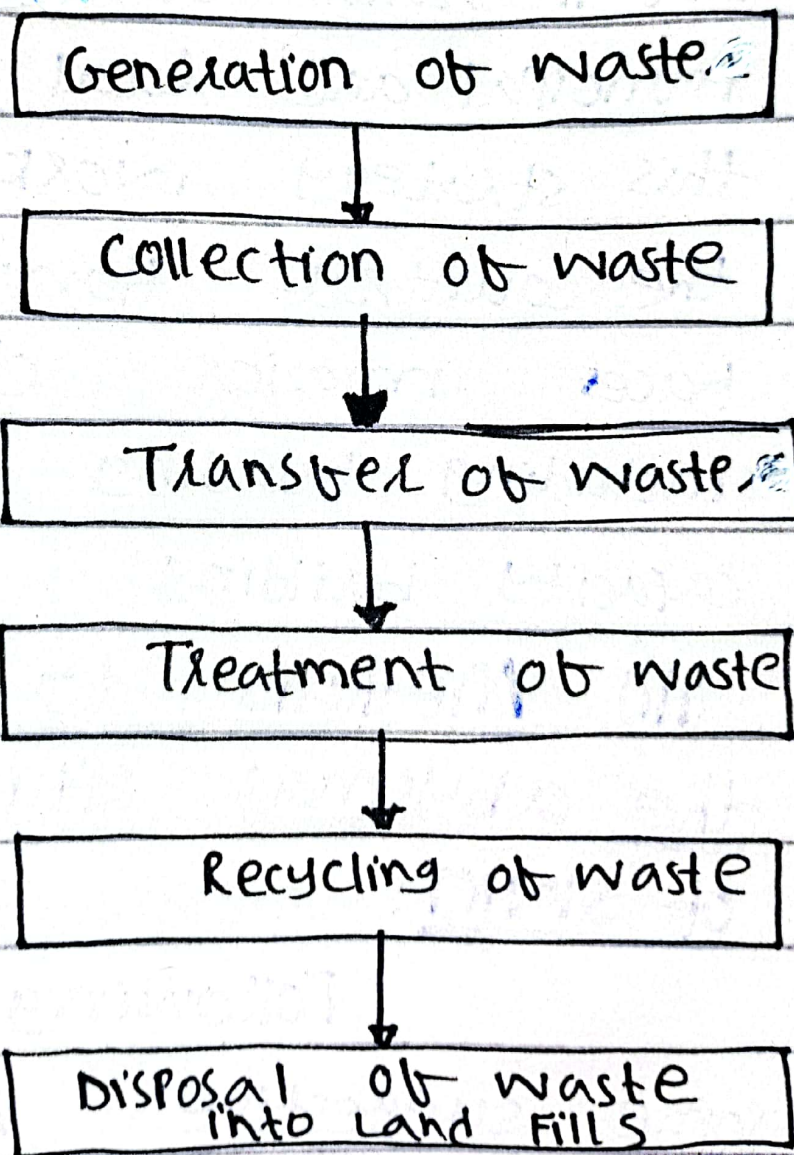
Q: 4

ANSWER

a)

i) SOLID Waste Management:

It is the systematic management of generation, collection, transfer, treatment, recycling and disposal of solid waste.



ii) National solid waste Management strategy in Pakistan

In Pakistan, National solid waste management is working to systematically manage whole cycle of solid management. However, it is central in mega cities not in rural area. Through municipal and local government, this strategy works in the country. However, it faces major challenges, including funding issue and capacity building.

(iii) Methods to improve the abysmal situation of SWM:

Following are some suggestive methods in this regard:

a) There is need for capacity building in Pakistan's SWM.

b) The experience of developed countries having sophisticated SWM must be incorporated in SWM.

c) The environmental experts must be taken on board to strengthen SWM.

d) Funding issues must be tackled.

e) Public education should be prioritized regarding their role in SWM.

f) There should be proper accountability and oversight of district administration regarding SWM.

Yes, Pakistan is the birth most populous country due to many causes.

i) Causes of population explosion in Pakistan:

Following are some major causes of population explosion:

- a) Less Contraception prevalence rate in the country.
- b) Poor state of rural health facility
- c) Lack of governmental-led family planning initiative
- d) Illiteracy among people on question of overpopulation
- e) Religious misinterpretation prevalent in society
- f) Higher women fertility rate and poor reproductive health.

ii) Control measures for tackling overpopulation in Pakistan:

- a) Initiation of family planning policies by the government.
- b) Educating people to use contraception methods to control birth rate.
- c) Islamic scholars must be taken on board to tackle overpopulation.
- d) Work on women empowerment is needed.
- e) Improve rural health care to enhance women reproductive health.

(d)

i. Montreal Protocol:

It is an agreement on curbing ozone depleting by ~~ban~~ reducing concentration of

chlorine, bromine and chlorofluorocarbons. It was reached in 1980's era by the United Nations.

ii) Kyoto Protocol:

It is an international commitment reached in 1997 to reduce emissions of Greenhouse Gases globally.

(iii) Carbon Market:

The term carbon market denotes the community of nations emitting larger concentration of CO_2 into atmosphere such as coal plants, industries.