

Question No: 02

I. How is a Satellite launched?

(a) Satellite:

Satellite is an object, natural or artificial, orbits around a larger body or any Planet.

(b) How Satellite is launched:

Satellite, artificial one, is launched from earth surface through rocket, having enough power to take it into the space.

• Rocket Pad:

Satellite is design and fix as per the rocket's structure and place on a tower on a rocket pad.

• monitoring:

Various computer networks monitor the speed and alteration.

II. Working Principle of GPS-:

(a) GPS:

It stands for Global Positioning system.

(b) Working of GPS:

The GPS is a satellite-based navigation system that shows exact position, location, and velocity of an object on earth.

• Working principle:

Its working principle is known as:

• Trilateration.

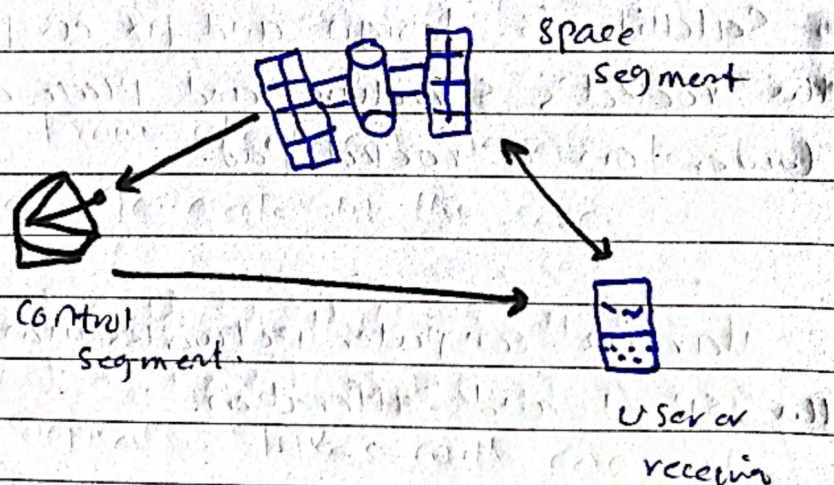
• Trilateration:

(i) Space Segment

(ii) Control Segment

(iii) User or receiver Segment

• Diagram:



• Space Segment:

• 24 Satellites, sending signals

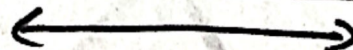
• Control Segment:

• Control and monitor the signals

• User Segment:

• receiver receive signals as

2D or 3D.



(3)

I. Optical Fiber:

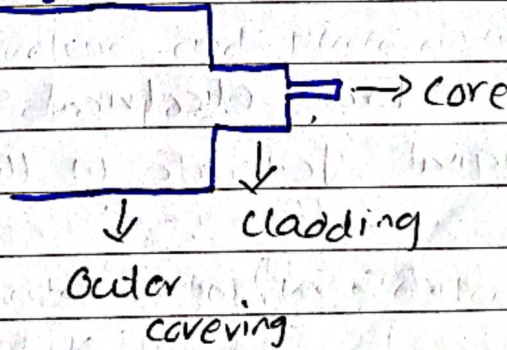
(a) Explanation:

An optical fiber is a technology that sends data, voice and images in the form of light pulses or signals rather than electrical signals through a strand of plastic or glass wire.

(b) Definition:

"Optical fiber is a flexible, thin strands of glass or plastic, which transmit data in the form of light pulses with loss."

(c) Construction:



(d) Working principle:

"Working principle is:

"Total internal reflection"

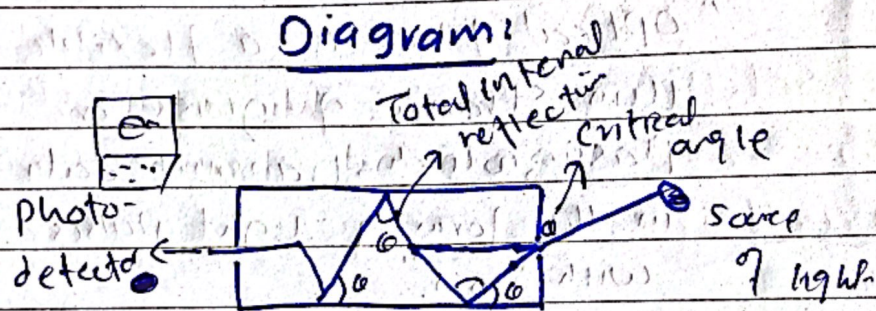
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(e) Mechanism of working of optical Fiber?

It has multifaceted process, including:

• Source of light:

A source of light inserts signals into the core.



• Electrical Pulses in core:

From electrical signals to light signal generate in the core.

• Total internal reflection:

Signals strikes with core at greater angle than critical and go towards cladding. This process continue — causing total reflection.

• Photo-receiver:

In the end signals are received by

a photo-detector, which change light pulses into again electrical signals.

f) Ending remarks:

This is how light signals pass through core and cladding under total internal reflection without any loss and electromagnetic interferences.

(D)

(I) RAM and ROM

(a) RAM :

It stands for Random Access Memory.

• Features :

- It stores data temporary.
- It is volatile.
- Data loss when system goes off.

(b) ROM :

It stands for Read only Memory.

• Features :

- It stores data permanently.
- It is non-volatile.

- Data can only be read cannot be altered.

II. Soft and Hardware:

(a) Soft-wave:

Soft-wave are intangible part of computer that are beyond physical influence, which include programs and information.

• Features:

- Intangible parts
- Cannot be changed

• Example:

- MS Word, Excel, and Application

(b) Hardware:

Hardware means those part which are tangible and can be touched and altered.

• Features:

- can be changed
- can be touched
- can be repaired

• Example:

Printer, CPU, mouse etc

(iii) Computer BUS:

Computer bus is related to the memory of computer. It can be of various types.

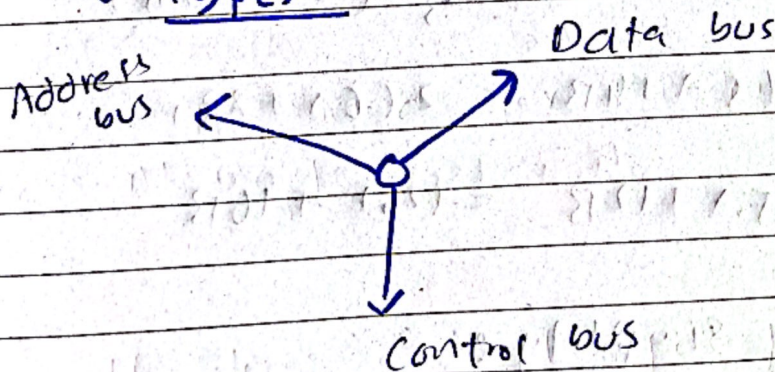
Definition:

It is a communication system that transfers data between various components of a computer.

Features:

- It acts like highway.
- Data sharing between components.

Types:



Question: 1

(13)

Given Data:

$$\frac{5}{100} A + \frac{4}{100} B = \frac{2}{3} \left(\frac{6}{100} A + \frac{8}{100} B \right)$$

Taking LCM on both sides

$$\frac{5}{100} A + \frac{4}{100} B = \frac{2}{3} \left(\frac{6}{100} A + \frac{8}{100} B \right)$$

$$\frac{5A + 4B}{100} = \frac{2}{3} \left(\frac{6A + 8B}{100} \right)$$

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

$$3(5A + 4B) = 2(6A + 8B)$$

$$15A + 12B = 12A + 16B$$

Simplify:

$$15A - 12A = 16B - 12B$$

$$3A = 4B$$

$$A:B = 4:3$$

(8)

Given Data:

$$A + B + C + D$$

$$5x + 2x + 4x + 3x$$

$$C = 4x$$

$$D = 3x$$

So, as per question

$$D = 0 + 1000$$

$$4x = 3x + 1000$$

$$4x - 3x = 1000$$

$$\boxed{x = 1000} \rightarrow \textcircled{1}$$

$$B = 2x$$

Putting value from $\textcircled{1}$

$$= 2(1000)$$

$$\boxed{B = 2000} \rightarrow \textcircled{2}$$

D

Given data:

$$\frac{\cancel{100} \times A}{\cancel{100} \times 5} = \frac{2}{3} B$$

$$\frac{2}{5} A = \frac{2}{3} B$$

$$\cancel{2} \times \frac{\cancel{2}}{5} A = \cancel{2} \times \frac{\cancel{2}}{3} B$$

$$\frac{A}{5} = \frac{B}{3}$$

$$\boxed{A : B = 5 : 3}$$

(A)

Solution:

$$1 = 1, 11, 21, 31, 41, 51, 61 = 7$$

$$9 = 9, 19, 29, 39, 49, 59 = 7$$

$$SO = \frac{\cancel{100} \times 100}{\cancel{100} \times 100}$$

$$\boxed{= 20\%}$$