

## General Science & Ability Past Paper Questions

Qno.1 Where and how Fiber Optics are used? Also write down their advantages and disadvantages. (2020)

Fiber Optics:

Fiber optics are medium and technology to transmit information as light impulses along the hollow glass tube. It transmit information in form of light.

Uses of Fiber optics:

(i) Transmission of information:

It is used to transmit information in form of light more efficiently than other means like copper etc for long distance.

(ii) Medical use:

Fiber optics are used in treating, analysing diseased diseases. They are small enough that can

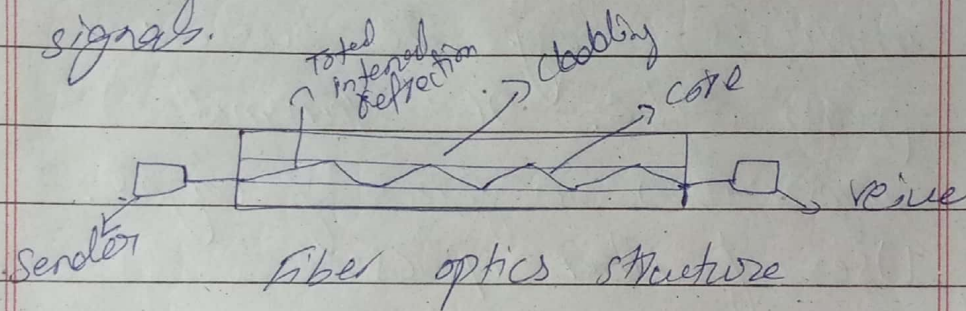
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send in blood veins. They help to display inner organs without surgery.

Working of Fiber Optics:

Fiber optics through light form. It need a sender device which send signal in light form and transmit it it also need a receiver who receive its signals.



Advantages:

Advantages of fiber optics are as follows

- (i) Weight: Fiber optics are much thinner than copper with equal capability of transmitting information. It is less weighted and easy to install.

(ii) Safety : They are more safe than copper because they are dielectric and present no spark hazard.

(iii) Low signal loss : It do low signal loss than copper wires and gave long distance transmission of 2000 m than copper which is 100 m.

Disadvantages :

(i) Cost : It is costly to install but live longer than copper.

(ii) It need to choke after some distance.

Qno2. Give a brief account of optic fibres. what is their importance in present day telecom system? (2019)

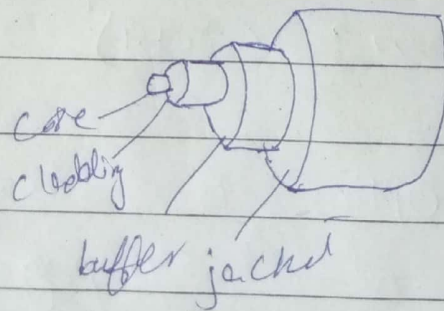
Fiber Optics :

Optics is study of light and its propagation.

Fiber optic is a medium and technology to transmit information as light impulses along the hollow glass tubes. It transmits ~~light~~ information in form of light.

### Structure of Fiber Optics:

Fiber Optic is <sup>mainly</sup> consist on 4 parts: the core, the cladding, the coating or buffer and the jacket. Core is central part of optic fiber and made of glass. It is covered/protected by layer called cladding which is made of plastic.



Structure of fiber optic

## Importance:

Fiber optic have great significance in present day telecommunication system. It is performing multiple function in daily routine. It is used to transmit information efficiently and with more ease in form of light. It is better than copper for long distance transmission, installation, cost and safety. Further, it is used in medical field. It help to diagnose the disease. It display the inner and minor organs of human body without performing surgery. Moreover, it is used in all communication fields.

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Qns. Differentiate between RAM and Rom. (2017)

RAM and Rom both are types of internal memory storage of computers but they differentiate in following manner.

RAM : RAM (Random Access memory) as its name shows that it can access any cell of memory of computer. The data is stored in memory cell chip or in modules.

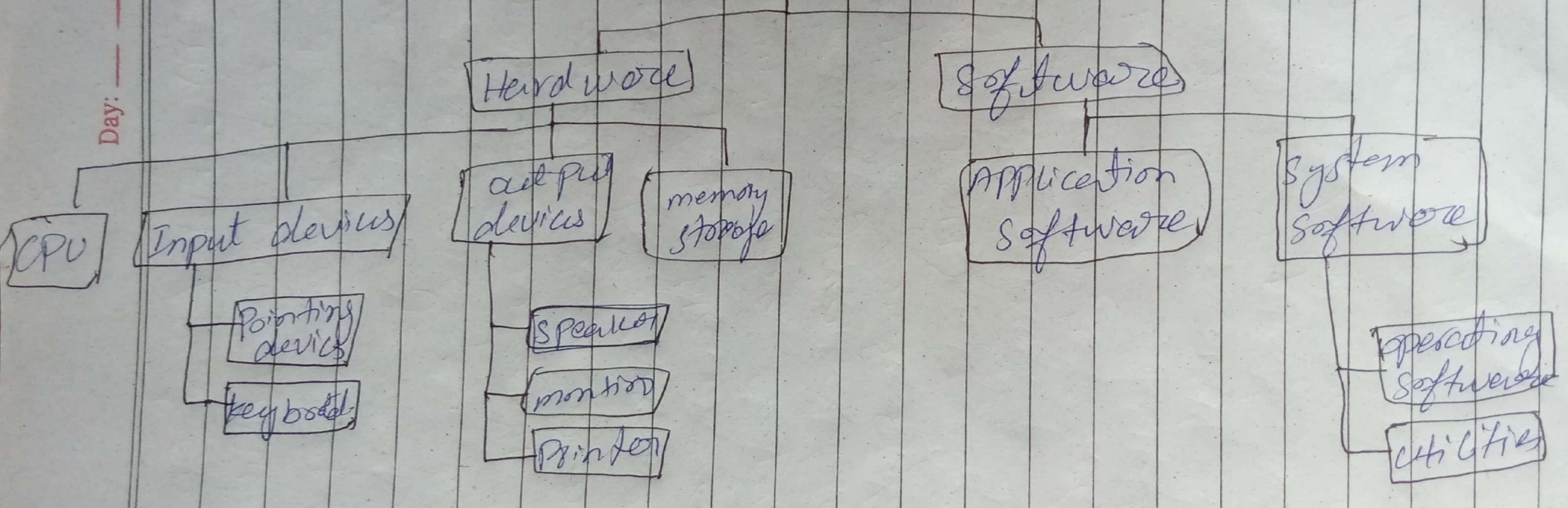
RAM perform fast working than any other program. So as RAM of a computer increased, the working speed also increased. It can also read and write. The data stored in RAM is temporary and computer shuts data losses. It is volatile memory.

ROM : ROM (Read-Only memory) is hard wired instructions that works as computer boots. It can only read but cannot change. It is permanent memory as if computer shuts down, the data still remains. It is ~~non~~<sup>non</sup>-volatile memory.

Qno.4. Draw a basic computer block diagram and briefly explain the functions of each part. (2017)

Computer: Computer is a technical machine which collect, transmit data under the control of instructions stored in its own memory and stored process data for future use. It consist on following parts: mainly on hardware and software.

# Computer



Component of computer.

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**Hardware :** Physical parts and other devices (external) is hardware. It is used to run software. Hardware devices consist on internal devices like motherboard etc. and on external devices like monitor, printer etc. USB, mouse also are external devices. External devices are also called peripheral devices.

**Output devices :** output devices are devices that gave output of instructions. These are speaker, monitor, printer etc.

**Input devices :** input devices are devices that communicate user with computer. These are pointing devices, keyboard. etc.

**CPU :** CPU (Central Processing Unit) is brain of computer and made up of small chips.

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**Memory Storage:** Data is stored in numeric number in computer memory. mostly in binary digit 1 and 0. It stored in form of bits. Computer memory have two parts internal and external.

**Software:** Computer Software mostly software is a form of encoded information or data instructions, opposite to hardware.

**Application Operating Software:** Operating software perform functions other than basic functions of computers.

**System software:** System software directly controls hardware, perform basic functions and provide platform for application software.

Ques Write a short note on Artificial intelligence. (2016)

Artificial Intelligence:

Artificial intelligence is science and engineering of making intelligent machines.

John McCarthy has introduced its concept in 1956 and defined it as "Science and engineering of making intelligent machines which are able to perform human like functions".

AI is used in all field of life in present day. It comprise on following three parts: Cognitive, robotics and natural.

Cognitive: In cognitive term, AI analysis field of psychology mathematics etc.

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It tried to know how humans are work and thought. It performed the functions as instructor, genetic and some fuzzy data.

Robotics: In Robotics, AI is mainly concerned with Robots and Technology. It consist on visual display, locomotion etc.

Natural: It deal with natural functions of humans with robots like communicating etc.

