PART- A

ADVANCED CONSTRUCTION MATERIALS

Fibers & Plastics

Types of fibers

(1) Steel

(2) Carbon

(3) Glass fibers

(1) Steel

→ Steel fibers are manufactured fibers composed of stainless steel. Composition may include carbon, silicon, manganese, phosphorus, sulfur & etc.

→ It is commonly used in tunnel construction, as it provides additional flexural strength, reduces shrinkage, cracking, reduces permeability.

(2) Carbon

→ Carbon fibers have high stiffness, high tensile strength, low weight, high chemical resistance, ~~tin~~ high temperature resistant, low thermal expansion.

→ ~~It is P~~

→ It is primarily used for strengthening and reinforcement of concrete, steel, timber & masonry.

(c) Glass fibers

- It is effective than others fibers. it is expensive. It is less brittle when used as composites. It gives more strength. so. it is used as reinforcing agent for many polymer products. It is light in weight. It contains little or no air or gas. It is more dense, poor thermal insulation.

Plastics

(1) PVC
(2) RPVC
(3) HDPE
(4) FRP
(5) GRP

(1) PVC

Polyvinyl Chloride. widely produced synthetic plastic polymers. It may rigid or flexible. Rigid PVC are used in construction for pipes, door & windows. It is flexible by addition of plasticizer.

(2) RPVC

Rigid polyvinyl chloride which come from PVC. It is strongh & durable. easy installation & low ~~maintena~~ maintenance etc. It is used for irrigation system, disposal waste, It leakage proof, saves energy etc.

(3) HDPE

High density polyethylene. it is a thermoplastic polymer produced from monomer ethylene. It is use ~~in~~ for plastic bottles, corerosion-resistant pipes.

(4) FRP

Fibre-reinforced plastic, made of a polymer matrix reinforced with fibres. Used on walls & ceilings etc.

(5) GRP

Glass reinforced plastic, it is a composite of plastic & glass fibers. It is more flexible, It is used as pipes in sewer, drainage systems. etc.

Acoustic materials

Acoustic means sound proofing material. It is used for damping sound in ventilation installations, developing special acoustic effects in TV, radia and film shooting studios etc. Facing interiores of premises which require a low noise level such as offices, resturants, commercial centers, banks etc. It ~~pro~~ is used to providing adequate acoustic in theatre halls, auditoriums etc. ~~Vari~~

Various types of absorbent materials are available in the ~~marked~~. Some common types are hairfelt, acoustic plasters, acoustic tiles, straw board, pulp boards, perforated plywood, fibreboard etc.

Wall Cladding

Cladding is used to provide a degree of thermal insulation, and weather resistance and to improve the appearance of buildings. Wall cladding is used to improve the appearance, used for aesthetic purepose. It is a non-load bearing layer which protects the interiors of the buiding and finishing. materials are tiles, stone cladding, brick cladding, timber cladding, concrete cladding, weatherboard Cladding, metal cladding, glass cladding etc.