10-Marks questions with blooms levels:

UNIT - I

1.Explain in detail about different types of dressing of stones?

Ans: The stone dressing is a process of surfacing and shaping of rocks available naturally. The place where the rocks are abundantly available is called as a quarry. The process of taking stones from the natural bed is known as 'Quarrying'.

The operation of stone dressing is generally carried out at the site of quarry so as to reduce the transportation cost.

The dressing of stone is generally done using hand tools like Chisel, Pickaxe etc using heavy machines or blasting using explosives. Once quarried, the stones are cut into the suitable size and surface finishes. This process is termed as dressing of stones. The effective dressing of stones would help in making your structure attractive and economical.

Different Stages Involved in Stone Dressing

Sizing :

The irregular quarried rock is cut into desired dimensions by removing extra portions. It is generally done using hammers and chisels or cutting machines.

Shaping :

once cut to desired dimensions extra projections are removed to shape the stone.

Plaining :

It is the process of removing irregularities from the stone surface.

Finishing:

It is done by rubbing the stone surface with an abrasive material like silicon carbide.

Polishing :

In this stage the stone is polished by hand or machine to make it more attractive. It is generally done in stones like lime stones, marbles and granite. the effective dressing of stones would help in making your structure attractive and economical

2.Discuss in detail about the building materials adopted in low cost housing?

Ans:

1. Bamboo

- A green, and sustainable material, bamboo is abundantly available in India.
- Bamboo can be used for structural, and aesthetic purposes.
- Its flexibility is advantageous in seismic regions.

- Bamboo is also fire-proof and can be treated to be termite-proof.
- Bamboo is also available as corrugated sheets for roofing.

2. Compressed Earth Bricks

- Also known as Adobe bricks, these bricks are made out of the soil of that region and reinforced using lime and cement.
- Sustainable, fire-proof, and lightweight, they are quite possibly the most efficient low-cost material.
- They are thick and are used for exterior walls.
- They are one of the least expensive building materials too.
- Since it can be made on-site using the soil there, it reduces transportation costs as well.

3. Reinforced Mud Bricks

- Mud bricks gain strength even through natural reinforcements such as straw and coconut.
- Coconut and straw add strength and sturdiness to the unadulterated (untreated) soil.
- Other fibers such as rice husk, bagasse, oat straw, and corn straw are also added with cement to make them corrosion resistant.
- A sulphur coating is added to the bricks to make them waterproof.
- These bricks are used in houses to make them durable and weatherproof.

4. Shipment Containers

- Shipping containers are a popular low-cost material among the users researching recyclable material.
- The smallest of containers can provide a space of 100 sq feet.
- These can be pre-assembled and placed upon a ready foundation.
- The assembly can be done as per the requirements and gives creative liberty.
- The containers can be imagined as Lego® blocks, with physical limitations.

5. Prefabricated Houses

- In an age where the cost of cement, and brick, and mortar is increasing, pre-fabricated houses have become a go-to solution.
- The houses are made of steel framing, wooden boards, and concrete floors.
- Factory-made doors, windows, ceilings, and walls are added to the frame.
- Based on the necessities, the walls, ceilings, and other features can be altered to specification.
- Though the materials used are considerably expensive, in the big picture, the production, transportation, and labour costs are brought down.

3. Explain in detail about the manufacturing process of bricks?

Ans: Manufacturing of bricks constitutes four stages i.e., preparation of soil, moulding, drying and burning.

Preparation of Soil

Removal of Top Soil: The removal of top soil involves the loose materials present at the top of the soil for a depth of about 200 mm. These materials should be removed as they contain a lot of impurities and are not used in the preparation of bricks.

Digging and Spreading: After digging the soil for about 200 mm, the soil is spread on the level ground, and the heaps of clay are about 600 to 1200 mm.

Cleaning: After spreading the soil on the ground, it should be cleaned of stones, vegetable matter, pebbles, etc... If excess non-clay materials are present, the clay should be washed and screened. This whole process will become expensive and clumsy. The lumps in soil should be crushed into a powder form.

Weathering: The soil is then exposed to the atmosphere for softening for a few weeks depending on the nature of the soil, which imparts plasticity and strength to the soil.

Blending: To increase the quality of soil, additionally, sandy or calcareous clays may be added in suitable proportions along with coal, ash, etc. and the whole mass is mixed uniformly with water.

Tempering: After adding the sufficient quantity of water, the soil is kneaded under the feet of men or cattle to make it stiff and homogeneous. In general, for handmade bricks, the soft plastic clay could be prepared by using about 25 to 30 per cent water. For making superior bricks on a large scale of about 20,000, the earth is tempered in a pug mill.

Moulding of Bricks

Bricks are made in metric sizes called modular bricks, as prescribed by the Bureau of Indian Standards. Nominal size of the bricks is 20cm X 10cm X 10cm, which include the thickness of the mortar and the actual size of modular brick is 19cm X 9cm X 9cm.

A brick mould is a rectangular box of steel or wood, which is open at the top and bottom of the box and inside dimensions of the mould are 20cm X 10cm X 10cm.

4. Explain in detail about the characteristics of a good building stone?

Ans: Texture : A good building stones must compose fine crystalline structure which should be free from cavities, cracks or patches of soft or loose material. Stones with such texture are so strong and durable.

Toughness Index : If the value of toughness index comes below 13 in impact test, then the stone is not tough. If the value comes in between 13 & 19 then stone is said to be moderately tough and if it exceeds 19 then stone is said to be highly tough.

Hardness : As worked out in a hardness test, the coefficient of hardness should be greater than 17 for a stone to be used in a road work. If it is between 14 & 17 then it is said to be medium hardness and if it is less than 14 ,it is said to be of poor quality.

Crushing strength : For a good building stone, the crushing strength should be greater than 100 N/mm3.

Durability : A good building stone should be durable and for making stones durable, their natural bed should be carefully noted.

Appearance : Those stones which are used for face work should be decent in appearance. They should be able to protect their color for a long time.

Percentage wear : If the wear is more than 3 in attrition test, the stone is not acceptable. For a goog building stone the wear should be equal to or less than 3%.

Specific gravity : Good building stones must have specific gravity greater than 2.7

Water Absorption : We know that all the stones are more or less porous in nature but for a good building stones, percentage of water absorption by weight after 24 hours should not exceeds 0.60

UNIT -II

1.Describe the common types of glass?

Ans: There are four main types or strengths of glass:

1) Annealed Glass

Annealed glass is a basic product formed from the annealing stage of the float process. The molten glass is allowed to cool slowly in a controlled way until it reaches room temperature, relieving any internal stresses in the glass. Without this controlled slow cooling, glass would crack with relatively little change in temperature or slight mechanical shock. Annealed glass is used as a base product to form more advanced glass types.

2) Heat Strengthened Glass

Heat Strengthened Glass is semi tempered or semi toughened glass. The heat strengthening process involves heating annealed glass back up to about 650 to 700 degrees Celsius and then cooling it quickly, although not as fast as with toughened glass. The heat strengthening process increases the mechanical and thermal strength of annealed glass, making it twice as tough as annealed glass.

When it breaks the fragments are similar in size to annealed glass, but with a greater likelihood of staying together.

This glass is not often used in balustrades or similar structural applications because of its limited strength compared to tempered or toughened glass, although is sometimes specified when there is concern about tempered glass fracturing into thousands of small pieces.

3) Tempered or Toughened Glass

This is the most common type of glass used in balustrades or similar structural applications. Annealed glass is heated to about 700 degrees Celsius by conduction, convection and radiation. The cooling process is accelerated by a uniform and simultaneous blast of air on both surfaces. The different cooling rates between the surface and the inside of the glass produces different physical properties, resulting in compressive stresses in the surface balanced by tensile stresses in the body of the glass.

This process makes the glass four to five times stronger and safer than annealed or untreated glass.

The counteracting stresses or surface compression gives toughened glass its increased mechanical resistance to breakage, and when it does break, causes it to produce small, regular, typically square fragments rather than

long, dangerous shards that are far more likely to lead to injuries.

4) Laminated Glass

Any one of the above types of glass can be laminated. The most commonly used finished product is two sheets of toughened glass, laminated together with a 1.52mm thick Polyiynil Butyral (PVB) interlayer.

2.Explain the properties of glasses?

Ans: Physical and chemical properties

Density 2500 kg/m3
Hardness 470 HK
Modulus of elasticity 70 000 MPa
Bending strength after tempering 100-120 MN/m2
Specific heat 0.8 J/g/K
Thermal conductivity 0.8 W/mk
Temperature coefficient of expansion 9.10-6 K -1
Laminated glass

In 1909, a French chemist Edouard Benedictus, invented laminated glass and called it "Triplex". The process bonds two sheets of glass using a sheet of transparent plastic, producing a safety glass. If the glass is broken by an impact, the plastic retains the fragments. The process is used for automobile windshields but can be also applied for laminated sidelites, laminated backlites and roofs.

Applications Mandatory for Windshields and available for the rest of the car.
If struck or impacted, the glass cracks in the shape of a spider's web.

gross
Material properties

Hardness 470 HK
Index of refraction 1.52
Temperature resistance At least 96 Hours at 90°C
More generally, all laminated glass passes all legal and OEM requirements concerning durability against heat, UV, moisture

3. Discuss classification of plastics in detail?

Ans: Thermoplastics

Thermoplastics are plastics that do not undergo a chemical change in their composition when heated, and hence, they can mould several times. Examples are polypropylene (PP), polyethylene (PE), polyvinyl chloride (PVC)

and polystyrene (PS).

Thermosets

Thermosets polymers are plastics that can melt and mould into any shape only once. They'll undergo an irreversible chemical reaction when heated, hence, if heated again they decompose instead of melting.

Conductive Polymers

Intrinsically Conducting Polymers (ICP) are electrically conductive organic polymers. Example: Polyacetylene.

Biodegradable Plastics

Biodegradable plastics are plastics that degrade or break down when exposed to sunlight or ultraviolet radiation, bacteria, certain enzymes, dampness or water, or wind abrasion. In certain circumstances, rodents, pests or insect attacks can also act ad biodegradation modes or environmental degradation. Example: Starch-based plastics, Cellulose-based plastics, Soy-based plastics.

Bioplastics

While most plastics are products of petrochemicals, bioplastics are plastics produced substantially from renewable plant materials such as cellulose and starch. Due to the finite limits of petrochemical resources and the risk of global warming, bioplastics is still a growing field.

Recycling of Plastic

The recycling process of plastic is an essential procedure. If not recycled at the correct time, the plastic mix with other chemicals or materials, making it tougher to recycle and become a source of pollution.

4. Write down the advantages and disadvantages of plastic?

Ans: Advantages of Plastics

The growth in the use of plastic is due to its beneficial properties which include:

Extreme versatility and ability to be tailored to meet specific technical needs.

Lighter weight than competing materials reduces fuel consumption during transportation.

Good safety and hygiene properties for food packaging.

Durability and longevity

Resistance to chemicals, water and impact.

Excellent thermal and electrical insulation properties

Comparatively lesser production cost

Unique ability to combine with other materials like aluminium foil, paper, adhesives

Far superior aesthetic appeal.

The material of choice – Human lifestyle and plastic inseparable.

Intelligent features, smart materials and smart systems.

Disadvantages of Plastics

Plastics production also involved the use of potentially harmful chemicals which are added as stabilizers or

colourants. Many of these have not undergone environmental risk assessment and their impact on human health and the environment is currently uncertain.

Such an example is phthalates which are used in the manufacture of PVC. PVC has in the past been used in toys for young children and there have been concerns that phthalates may be released when these toys are sucked. Risk assessment of the effects of phthalates on the environment is currently being carried out. The disposal of plastics products also contributes significantly to their environmental impact.

Most plastics are non-degradable and they may take a long time to break down once they are landfilled. With more and more plastic products, particularly plastics packaging, being disposed of soon after their purchase, the landfill space required by plastics waster is a growing concern.

UNIT -III

1.Explain commonly used building insulation materials.?

Ans: insulation materials:

Fiberglass
Mineral wool
Cellulose
Natural fibers
Polystyrene
Polyisocyanurate
Polyurethane
Perlite
Cementitious foam
Phenolic foam
Insulation facings

Fiberglass:

Fiberglass consists of extremely fine glass fibers and is one of the most ubiquitous insulation materials. It's commonly used in many different forms of insulation: blanket (batts and rolls), loose-fill, and is also available as rigid boards and duct insulation.

Mineral Wool Insulation Materials:

The term "mineral wool" typically refers to two types of insulation material:

Rock wool, a man-made material consisting of natural minerals like basalt or diabase.
Slag wool, a man-made material from blast furnace slag (the waste matter that forms on the surface of molten metal).

Polystyrene Insulation Materials:

Polystyrene--a colorless, transparent thermoplastic--is commonly used to make foam board or beadboard insulation, concrete block insulation, and a type of loose-fill insulation consisting of small beads of polystyrene

Polyisocyanurate Insulation Materials:

Polyisocyanurate or polyiso is a thermosetting type of plastic, closed-cell foam that contains a low-conductivity, hydrochlorofluorocarbon-free gas in its cells.

Perlite Insulation Materials

Perlite insulation materials are commonly found as attic insulation in homes built before 1950.

Perlite consists of very small, lightweight pellets, which are made by heating rock pellets until they pop. This creates a type of loose-fill insulation made of pellets that can be poured into place or mixed with cement to create a lightweight, less heat-conductive concrete.

Cementitious Foam Insulation Material

Cementitious insulation material is a cement-based foam used as sprayed-foam or foamed-in-placed insulation. One type of cementitious spray foam insulation known as aircrete contains magnesium silicate and has an initial consistency similar to shaving cream. Air krete is pumped into closed cavities.

2. Write down the requirements of good Acoustics?

Ans: Acoustic requirement for good auditorium is as follows-

1) The initial sound should be of adequate intensity.

2) The sound should be evenly distributed throughout the hall.

3) The successive nodes should be clear & distinct.

4) Noise has to be taken care of.

5) The size & the shape of the ball has also to be taken care.

These requirements can be achieved by following ways-

1) Site/location:-Before construction the first important factor to be considered is the location. For best acoustical quality of the hall. It should be far from railway tracks, industrial areas, airports, & highways, etc.

2) Size: - The size of the hall should be optimum, neither big nor small. It is small uneven distribution of sound will take place due to the formations of stationary waves. If size is too big reverberation time will be more that results in confusion &unpleasant sound.

3) Shape: - Instead of parallel walls spade walls are preferred, curved surfaces should be built with proper care.

4) Reverberation: - Reverberation time (T) should be neither too small nor too large. If it is small intensity will be weak. If large sound will be unpleasant. Thick carpets curtains, upholstered chairs, audience take care of reverberation. For lecture halls the reverberation time is approximately 0.5sec, for music concerts hall-1.5sec, for cinema theatres-2sec

5) Absorption: - Use of proper absorbent material enhances the quality of sound.

6) Echelon effect: - The regular intervals/space between staircase or railings give repeated echo, this makes the sound unpleasant, so thick carpets take care of this & wide gaps between staircases are generally preferred.

3. Explain the different types of sound absorbents?

Ans: There are three basic categories of sound absorbers: porous materials commonly formed of matted or spun fibers; panel (membrane) absorbers having an impervious surface mounted over an airspace; and resonators created by holes or slots connected to an enclosed volume of trapped air. The absorptivity of each type of sound absorber is dramatically (in some cases) influenced by the mounting method employed.

Porous absorbers: Common porous absorbers include carpet, draperies, spray-applied cellulose, aerated plaster, fibrous mineral wool and glass fiber, open-cell foam, and felted or cast porous ceiling tile. Generally, all of these materials allow air to flow into a cellular structure where sound energy is converted to heat. Porous absorbers are the most commonly used sound absorbing materials. Thickness plays an important role in sound absorption by porous materials. Fabric applied directly to a hard, massive substrate such as plaster or gypsum board does not make an efficient sound absorber due to the very thin layer of fiber. Thicker materials generally provide more bass sound absorption or damping.

Panel Absorbers: Typically, panel absorbers are non-rigid, non-porous materials which are placed over an airspace that vibrates in a flexural mode in response to sound pressure exerted by adjacent air molecules. Common panel (membrane) absorbers include thin wood paneling over framing, lightweight impervious ceilings and floors, glazing and other large surfaces capable of resonating in response to sound. Panel absorbers are usually most efficient at absorbing low frequencies. This fact has been learned repeatedly on orchestra platforms where thin wood paneling traps most of the bass sound, robbing the room of "warmth."

Resonators: Resonators typically act to absorb sound in a narrow frequency range. Resonators include some perforated materials and materials that have openings (holes and slots). The classic example of a resonator is the Helmholtz resonator, which has the shape of a bottle. The resonant frequency is governed by the size of the opening, the length of the neck and the volume of air trapped in the chamber. Typically, perforated materials only absorb the mid-frequency range unless special care is taken in designing the facing to be as acoustically transparent as possible. Slots usually have a similar acoustic response. Long narrow slots can be used to absorb low frequencies. For this reason, long narrow air distribution slots in rooms for acoustic music production should be viewed with suspicion since the slots may absorb valuable low-frequency energy.

4. Write about the reflective insulation system?

Ans: Reflective insulation is a material with reflective facing—typical materials are foil-faced kraft paper, plastic film, polyethylene bubbles or cardboard. Radiant barrier insulation consists of a reflective material (generally aluminum foil) and can be combined with other materials in reflective insulation systems.

How Does Reflective Insulation Work?

Most common thermal insulation materials (like fiberglass) work by slowing conductive heat flow, but reflective insulation works a little differently. This type of insulation is designed to reduce radiant heat gain. When the sun heats a roof, it is primarily the sun's radiant energy that makes the roof hot. Much of this heat travels by conduction through the roofing materials to the attic side of the roof. The hot roof material then radiates its gained heat energy onto the cooler attic surfaces, including the air ducts and the attic floor. Reflective insulation, installed in the attic ceiling, reduces the radiant heat transfer from the underside of the roof to the other surfaces in the attic.

This helps keep your home cooler and more comfortable. Reflective insulation and radiant barriers work well in warm climates, particularly in homes with:

Air ducts in the attic

Asphalt roofing (which more easily absorbs heat from the sun)

Little to no shading from trees.

UNIT -IV

1.Explain the various types of stairs?

Ans: 1. Straight

This one is straightforward (literally). Straight stairs feature a single linear flight with no change in direction

2. L-shaped (a.k.a. quarter-turn)

The classic straight style, zhuzhed up a little. In this design, the stairs make a 90-degree turn at some point, going left or right after a landing.

3. Winder

The slightly more complicated sister to the L-shaped staircase. A set of winders—treads that are wider on one side than the other—takes the place of the landing to save space.

4. U-shaped (a.k.a. half-turn)

If you've ever promised yourself you'd take the stairs every day at your office, you've seen this back-to-basics style. The bend is taken even further to form a full U shape, and similar to the L-shaped staircase, a landing separates the two parallel flights.

5. Spiral

A compact design centered around a single pole, so that if you looked at it from above, it would form a perfect circle. Something to consider: A spiral staircase's narrow wedge-shaped treads aren't the easiest to traverse. (Avoid them if you're clumsy.)

Curved

Unlike winder or L-shaped staircases, a curved style has no landings. Instead, the stairs are continuous, following the bend of the banister to make a striking architectural statement.

2.Explain in detail various classification of arches?

Ans: Types of Arches

Arches are classified based on:

Shape

Number of Centre’s

Workmanship

Materials of construction

Types of Arches based on shape:

Based on the shape of construction arches are classified into 10 types and they are discussed below.

Flat Arch

For flat arch, the intrados is apparently flat and it acts as a base of equilateral triangle which was formed by the horizontal angle of 600 by skewbacks.

Even though the intrados is flat but it is given that a slight rise of camber of about 10 to 15 mm per meter width of opening is allowed for small settlements.

Extrados is also horizontal and flat. These flat arches are generally used for light loads, and for spans up to 1.5m.

Segmental Arch

This is the basic type of arch used for buildings in which Centre of arch lies below the springing line.

In segmental arch, the thrust Transferred in inclined direction to the abutment.

Semi-Circular Arch

The shape of arch curve looks like semi-circle and the thrust transferred to the abutments is perfectly vertical direction since skewback is horizontal. In this type of arch, the Centre lies exactly on the springing line.

Horse Shoe Arch

Horse Shoe Arch is in the shape of horse shoe which curves more than semi-circle. This is generally considered for architectural provisions.

3.Explain the different types of cladding?

Ans: Stone cladding (ceramic or brick cladding)

One of the most frequently used types of cladding is stone. A facade made of stone is sturdy and long-lasting and can give your building a luxurious appearance. A disadvantage of cladding a building with natural stone or ceramic cladding is that this facade material is usually quite heavy. Stone look cladding can be a very good alternative, as it’s light-weight and can even be bent

Metal cladding

Metal cladding, including materials like stainless steel, aluminum, zinc and copper, can give your facade a lustrous and very elegant appearance. Metal look exterior cladding will also provide your building with this luxurious timeless look, while it also offers even more design freedom.

Timber cladding (exterior wood cladding)

Timber is also a very popular building material that is often applied to facades. It gives any building a very warm and authentic look. Whereas using real timber can cause issues regarding fire safety and requires a lot of maintenance, there are also authentic looking, firesafe, low-maintenance and sustainable timber effect facade boards on the market.

Vinyl cladding

Vinyl cladding came up as a more durable option to other types of cladding. You’ll find that this facade material is flexible, versatile and low-maintenance. However, vinyl cladding isn’t the most sustainable option and the often very synthetic look might also not give your building the high-quality look you’re looking for.

4. Explain the necessity of form work and its requirements?

Ans: Formwork need to withstand the pressure of fresh concrete and working loads and should not distort or deflect from their position during the concrete placement operation. The formwork must not damage the concrete edge or surface; or themselves during removal from structure.

When selecting formwork, the type of concrete and temperature of the pour are important considerations as they both effect the pressure exerted. The formwork sides must be capable of resisting the hydrostatic pressure of the wet concrete which will diminish to zero within several hours depending on the rate of setting and curing. The formwork base or soffit must be capable of resisting the initial dead load of the wet concrete and the dead load of the dry set concrete.

Formwork should be:

Strong enough to withstand dead and live loads.

Capable of retaining its shape by being efficiently propped and braced horizontally and vertically.

Designed constructed to prevent leakage of cement grout, with sealed joints.

Capable of being removed in various parts without damaging the concrete.

Suitable for reuse.

Set accurately to the desired line.

As lightweight as possible.

Resistant to warping and distortion.

Resting on a firm base.

UNIT -V

1.Explain different types of paints?

Ans: Oil paint:

Paints are divided into two categories - oil-based paints and water-based paints.

Oil paints are usually applied as a primer, undercoat and a finish coat. In the past oil paints were heavily relied on because of its durability and longevity on surfaces, however water-based paints are now at par. Known for their gloss and durability, oil paints stand for a rich finish, water-resistant properties and long-lasting abilities.

Emulsion Paint:

Unlike traditional oil paints, majority of emulsions are water-based paints with fast-drying characteristics. It’s the popular choice for paint contractors since it’s alkali resistant, rich in texture and has stronger colour retention abilities, making it a long-lasting paint choice. As a homeowner, your biggest advantage with water-based emulsions is that it does not leave an odor and dries quickly. Acrylic emulsions offer your beautiful home resistance to cracking with its versatile and flexible finish through the years.

Enamel Paint:

As an oil-based solvent, enamel paints are characterized by key qualities of oil paints like slow-drying abilities and hardness.

It is an expensive choice for a homeowner, but enamel paints also render high durability, strong adhesion, provide glossy finish and are water and stain resistant.

Bituminous Paint:

Along with common paints, there are many types of industrial paints used to coat pipes, irons, woods and external work. Characterized by a black, tar-like appearance and good alkali-resistant properties, bituminous paint is formulated using dissolved asphalt and/or tar.

2. Explain the properties of various fire resisting materials?

Ans: This material is a poor conductor of heat and its expansion due to heat is small. Cracks are formed I this material when heated and then suddenly cooled. Reinforced glass with steel wire is ore fire-resistant than ordinary glass and it can resist sudden variation in temperature without the formation of cracks. Wired glass, even if it breaks, keeps the fractured glass in its original position.

STEEL

Steel is a good conductor of heat and hence, it is rapidly heated in case of fire. It is found that steel loses its tensile strength with the increase in heat and the yield stress of mild steel at 6000C is about one-third of its value at normal temperature. Hence, under intense fire, the unprotected steel beams sag, the unprotected steel columns buckle and the structure collapses. Steel completely melts at a temperature of 14000C. It is also found that if the surface paint is not specially made fire-resistant, it assists in spreading the flame on the surface and thereby it adds to the intensity of fire.

If steel plate or sheet form is fixed to framework, it becomes affective is resisting the passage of flame. Such construction is widely adopted in manufacturing fire-resisting doors and windows.

CONCRETE

Concrete has got very good fire resistance. The actual behavior of concrete in case of fire depends upon the quality of cement and aggregates used. In case of reinforced concrete and prestressed concrete, it also depends upon the position of steel. Larger the concrete cover, better is the fire resistance of the member.

There is no loss in strength in concrete when it is heated up to 250°C. The reduction in strength starts if the temperature goes beyond 250°C. Normally reinforced concrete structures can resist fire for about one hour at a temperature of 1000°C. Hence cement concrete is ideally used fire resistant material.

3.State the purpose of domestic floor finishes?

Ans. The ingredients used to make floor finishes combine to produce a balanced blend of physical and performance characteristics. Some of these characteristics include: hardness, gloss, clarity, scuff resistance, slip resistance, water and detergent resistance, buffability, removability, recoatability, and toughness.

There are five basic categories of floor finish ingredients, (1) polymer emulsions, (2) film formers, (3) modifiers, (4) preservatives and (5) water.

SUMMERY OF FLOOR FINISHES FOR COMMERCIAL BUILDING

CRITERIA FOR SELECTION OF FLOORING

- It should be durable
- It should be easy to clean
- Noiseless
- Have Good Appearance
- Free from dampness
- Fire Resistant
- Low Maintenance cost

OPERATIONS REQUIRED BEFORE TAKING UP FLOORING WORK

- Laying of all services like cables, pipes, conduits should be completed
- Plastering works should be completed.
- Fixing of door and window frame should be completed.
- Heavy work in the room where flooring to be done should be completed. Marking of outlets and points of level wherever the slopes in the floors required.

4. Explain the terms.

a) Plaster board ceilings.

b) Suspended ceilings

Ans. A suspended ceiling, otherwise known as a dropped ceiling or false ceiling, is a secondary ceiling made of a series of ceiling tiles and a metal framework that is hung from the underside of the structural ceiling above it. In general, a gap of between 3 and 8 inches is left between the structural and suspended ceiling, which is where the naming conventions originally comes from.

Plasterboard (also sometimes referred to as drywall) is a commonly used material for suspended ceilings

in commercial and residential buildings. It is moderately durable and relatively inexpensive; it also creates a flat appearance. The plenum area can be accessed through the installation of removable panels. Hugely popular in business premises and offices alike, dropped ceilings maintain a clean, professional atmosphere while utilizing the space created between itself and the structural ceiling to conceal the necessary wires, heating, and ventilation that a business is often required to have