

UNIT-III SPECIAL CONCRETES

PART-A

1. What is expansive cement?

A slight change in volume on drying is known as expansion with time will prove to be advantage for grouting purpose. This type of cement which suffers no overall change in volume on drying is known as “Expansive cement”.

2. What is the action of shrink comb in expansive cement?

Shrink comb grout acts like a Portland cement. It (shrinks) sets and hardens; it develops a compressive strength of about 140kg/cm^2 at 7days and 210kg/cm^2 at 28 days.

3. List the various types of polymer concrete.

i) Polymer impregnated concrete (PIC)

ii) Polymer cement concrete (PCC)

iii) Polymer Concrete (PC)

iv) Partially impregnated and surface coat

v) Polymer Concrete.

vi) Polymer impregnated concrete (PIC)

4. Give the various monomers used in polymer concrete.

- ☐ Methylmethacrylate (MINS)
- ☐ Styretoc
- ☐ Aerylonitrile
- ☐ t-butyle slynene

5. Define polymer concrete.

Polymer concrete is a aggregate bound a polymer binder instead of Portland

cement as in conventional concrete pc is normally use to minimize voids volume in aggregate mars. This can be achieve by properly grading and mixing of a to attain the max density and (mixing) the aggregates to attain (maximum) minimum void volume. The entrapped aggregated are prepacked and vibrated in a mould.

6. What are the uses of Polymer concrete?

During curing Portland cement form mineral voids. Water can be entrapped in these voids which are freezing can readily attack the concrete. Also alkaline Portland cement is easily attacked by chemically aggressive materials which results in rapid deterioration, there as using polymers can compact chemical attack.

7. What is sulphur infiltrated concrete?

New types of composition have been produced by the recently developed techniques of impregnating porous material like concrete with sulphur. Sulphur impregnation has shown great improvement in strength

8. What are the applications of sulphur infiltrated concrete?

Sulphur – (impregnated) infiltration can be employed in the precast industries. Sulphur infiltration concrete should found considerable use in industry situation where high corrosion resistant concrete is required. This method cannot be conveniently applied to cast- in place concrete Sulphur impregnation has shown area improvement in strength.

9. What is drying shrinkage?

Concrete made with ordinary Portland cement shrinks while setting due to loss of water concrete also shrinks continuously for long time. This is known as “drying shrinkage”.

10. What is self stressing cement?

This cement when used in concrete with restrained expansion includes compressive stresses which approximately offset the tensile stresses induced by shrinkage “self Stressing cement”

11. What is polymer impregnated concrete?

PIC is a widely used polymer composition concrete, cured and dried in over or dielectric heating from which the air in the (pipes) open cell is removed by vacuum. Then low density manpower is diffused through a open cell and polymerized by using radiation, application of heat or by chemical initiation.

12. Define polymer partially impregnated concrete.

Polymer partially impregnated or coated in dep(CID) and surface coated (SC) control partially polymer impregnated concrete is used to in the strength of concrete. Partially impregnated concrete is sufficient in situations there the major required surface persistent against chemical and mechanical attacks

13. How can we manufacture sulphur infiltrated concrete?

Sulphur is heated to bring it into molten condition to which coarse and fine aggregates are poured and mixed together. On cooling, this mixture gave fairly good strength, exhibited acid resistance and also other chemical resistance, but it proved to be either than ordinary cement concrete.

14. What is the difference between ordinary cement and expansive cement?

Ordinary concrete shrinks while setting whereas expansive cement expands while setting

15. What are the uses of gas forming and expansive chemicals

Gas formation and expansive chemicals to produce light weight concrete as well as to cause expansion on application such as grouts for anchor bolts. They are non strinking type. Principal chemicals used are Hydrogen peroxide, metallic aluminium or activated or activated carbon. Sometimes bentonite clays and natural gum are also used.

16) what is the use of corrosion inhibiting chemicals

They resist corrosion of reinforcement .in adverse environment sodium benzonate , calcium lingo sulphonate and sodium nitrate have good results

17) Write the use of antifungus admixtures

These are added to control and inhibit growth of bacteria or fungus in surfaces expressed t moisture. Polyhalogenated phenol, Dieldrin emulsion and copper compounds are some of the chemicals used for this

18) What are use of curing compounds

They are either wax based or resin based. When coated in freshly laid concrete they form a temporary film over the damp surface which stops water evaporation and allows sufficient moisture retention in concrete for curing

19) What are the uses of sealants

They are used to seal designed joints. They are formulated from synthetic rubbers or polysulphides. The choice of a sealant depends on the location of the joint, its movement capability and the function the sealant is expected to perform.

20) what are the uses of flooring

These are usually toppings based on metallic or non metallic aggregates which are mixed with cement and placed over freshly laid concrete sub floor. These compounds in high viscosity liquid, form mixed with recommended fillers at site, are based on resins and polymers such as epoxy, acrylic, polyurethane or polysulphide.

PART-B

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2. Briefly explain about polymer concrete and its types.
3. Explain in detail about Sulphur infiltrated concrete.
4. Explain in detail ferro cement