

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FOURTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: CE204

Course Name: CONSTRUCTION TECHNOLOGY

Max.Marks:100 Duration: 3Hours

**PART A**

***Answer any two full questions,each carries 15 marks***

1.a) **What are the various types of reinforcing steel? Explain its properties. (9)**

i)Plain steel bars/Mild steel

ii)Tor steel bars / High Yield Strength steel (HYSD):**(classification and explaining)**

**(4marks)**

Properties:(**Any 5 properties 5marks)**

**b)What are the properties and uses of Aluminium? (6)**

**Properties**

* Air Tightness
* Ease in Fabrication and Assembly
* Low Handling and Transportation Cost
* Reflectivity
* Corrosion Resistance
* Appearance
* High Scrap Value
* Sound Proof
* Low Maintenance Cost

(Explaining any 4 properties or similar properties 4M)

**Uses**: Explaining any 4 uses of aluminium 2M

**2.a)Explain the steps involved in BIS method of Concrete Design. (9)**

Explaining proper procedure- (9)

b) **List the requirements of good building stones. (6)**

* Strength
* Durability
* Hardness
* Toughness
* Specific Gravity
* Porosity and Absorption.
* Dressing.
* Appearance. (Explaining any 6 requirements or similar requirements (6)

3.a) **What is the role of water in concrete? Explain the significance of testing its quality.(9)**

Explaining importance of water- w/cratio,Hydration, binding properties,workability etc. (5)

Explaining Effects of chemicals such as chlorides,sulphate ,acidity and thereby the significance of testing quality(4marks)

**b) Role of Aggregate in Concrete. (6)**

* Cheap fillers • Hard material • Provide for volume stability • Reduce volume changes • Provide abrasion resistance It is inappropriate to treat the aggregate with any less respect than cement.

(Explaining any 6 requirements or similar requirements 6marks )

**PART B**

***Answer any two full questions,each carries 15 marks***

4.a) **Explain Various types of shallow Foundations with neat sketches. (9)**

* Strip footing.
* Spread or isolated footing.
* Combined footing Strap or cantilever footing.
* Mat or raft **Foundation**.

(Explaining each type with figures 9marks)

b) **Compare brick and stone masonry (6)**

( Any 3 comparison -6marks)

5 a)**What is pointing? Explain its various types with neat sketches. (9)**

Pointing is the technique of repairing mortar joints between bricks or other masonry elements.(Definition 2marks)

* Types of Pointing: The choice of particular type of pointing depends upon the type of masonry, nature of the structure and the nature of the finish desired.
* Flush Pointing
* Cut Or weathered Or Struck Pointing
* Keyed Or Grooved Pointing
* V-grooved Pointing
* Tuck Pointing
* Beaded Pointing

(Explaining any 4 types of pointing with figures 7marks)

b) **Enumerate the requirements of Partition walls. (6)**

* Thin in cross-section so that maximum floor area can be utilized.
* Provide adequate privacy in rooms both in respect of sight and sound.
* Constructed from light, sound, uniform, homogeneous, durable and sound insulated materials.
* Simple in nature, easy and economical in construction having proper coherence with the type of building structure.
* Offer sufficient resistance against fire, heat, dampness, white ant or fungus, etc.
* Rigid enough to take the vibrations caused due to loads.
* Strong enough to support sanitary fittings and heavy fixtures.

(Explaining any 3 requirements or similar relevant requirements 6marks)

6 **a) Explain various types of sloped roofs with neat sketches (9)**

(Any 4 types of sloped roofs with figures-9marks)

b) **List the requirements of ideal paint. (6)**

* Wearability
* Covering ability
* Ease of cleaning
* Environmentally Friendly
* Aesthetic
* Practical and cost effective.

(Explaining any 6 requirements or similar requirements 6marks

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**PART C**

***Answer any two full questions,each carries 20 marks***

7 a) **Explain Various types of structural systems with neat sketches. (10)**

Explaining any 3 types-10marks

b) **What is construction joints? Explain its various types with neat sketches.(10)**

Definition-2marks

Explaining types along with sketches-8marks

8 a) **Write short note on Slipform Construction. What are the advantages? (10)**

Any 5 points on Slipform construction-5marks

Advantages Any five-5marks

b)**What are the various causes of failures in RCC structures? Explain (10)**

* Accidental loadings and overloading
* Construction errors and poor workmanship
* Corrosion of embedded metals
* Design errors or Inadequate structural design or Poor design details
* Chemical reactions

Any 5 Causes -10marks

9 a) **Write note on failure of structure due to wind and fire. (10)**

* Failure due to wind –Giving any 3 relevant points with explanation(5)
* Failure due to fire –Giving any 3 relevant points with explanation(5)

b)**Explain the various methods of retrofitting columns with sketches (10)**

* Jacketing Method-Due to jacketing, enhancing the shear strength, concrete confinement, flexural strength.Concrete jacketing involves placing an additional layer of concrete covering the existing column, together with additional longitudinal bars and ties to enhance the flexural and/or shear capacities.

Any other relevant explainations-10marks

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