

**B.Arch. Engg. Examination, 2018****(1<sup>st</sup> Year, 2<sup>nd</sup> Semester, )****MATERIALS AND METHODS OF CONSTRUCTION-II**

Full Marks:100

Time: Three Hours

The figures in the margin indicate full marks

Note: Question No.1 is compulsory and answer any five from the remaining questions

1. (a) Fill in the Blanks
- (i) In cast iron the %age of carbon varies from \_\_\_\_\_
- (ii) For proper workability the w/c ratio varies from \_\_\_\_\_.
- (iii) GRC stands for \_\_\_\_\_
- (iv) TMT Bars are \_\_\_\_\_
- (v) The Crystal Palace in England was made with \_\_\_\_\_ iron.
- (vi) Which of the following glass is most suitable to withstand high temperatures?  
(a) soda-lime glass (b) lead glass (c) boro-silicate glass (d) tempered glass
- (vii) UEPVC stands for \_\_\_\_\_
- (viii) \_\_\_\_\_ glass is made from plate glass by reheating and sudden cooling and is 3 to 5 times stronger than plate glass.
- (ix) The temperature at which a particular plastic changes from flexible to rigid is known as \_\_\_\_\_
- (x) \_\_\_\_\_ is added in UPVC to produce a shiny surface. 10
- (b) (i) Explain with sketches the use of cast iron and wrought iron in a dome and truss construction with steel. 6
- (ii) Explain ETFE, its properties and its use in building construction 4
- (iii) Explain Hennebique structures and its important features. 5
2. (i) Explain the process of making tempered glass? 3
- (ii) Explain the main types of annealed glass and tempered glass with their uses. 6
- (iii) Explain the terms SHGC, VLT and LSG and their applications. 6

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| 3. | (i) Draw the flow chart showing examples of thermoplastics, thermosetting plastics and Elastomers.   | 6   |
|    | (ii) Define different types of Reinforced Plastics, their types and uses?  | 4   |
|    | (iii) Explain the different uses of PVC in building industry.  | 5   |
| 4. | (i) What do you mean by composite materials? Explain with examples.  | 3   |
|    | (ii) List various types of cement and their application areas.   | 6   |
|    | (iii) Differentiate between OPC, PPC and PSC cement and the advantages of PPC cement over OPC cement. Make sketches if necessary.                        | 6   |
| 5. | (i) Briefly highlight the building materials and technologies developed by CBRI, its properties and application in Buildings.                            | 7.5 |
|    | (ii) Briefly highlight the building materials and technologies developed by BMTPC, its properties and application in Buildings.                          | 7.5 |
| 6. | (i) What are the different types of external paints used in building construction?   | 3   |
|    | (ii) What are varnishes? Explain their use in the building industry.   | 4   |
|    | (iii) Explain different steps undertaken to paint steel & wooden surfaces.   | 8   |
| 7. | (i) Differentiate between bitumen and Asphalt based on its properties and use.   | 6   |
|    | (ii) Highlight general applications of neoprene and silicone in construction.  | 4   |
|    | (iii) What are the various water proofing materials used in buildings?   | 5   |
| 8  | (i) Draw the plans, elevation and isometric view for a T joint brick masonry in Special Bond with 200mm thick wall. (Size of brick 250mm x 125mm x 75mm) | 7.5 |
|    | (ii) Explain the construction process of various arches with sketches.   | 7.5 |