SECTION A

Multiple Choice Questions Answer all: 15X2=30

1. Large temperature differentials within the concrete member may promote
   a) Elastic shrinkage
   b) Cracking
   c) High workability

2. When the concrete in fresh stage is exposed to freeze before certain pre-hardening period, compressive strength may get
   a) Increased to 50%
   b) Decreased to 25%
   c) Decreased to 50%

3. Why the time period for removal of form work has to be increased.
   a) The development of strength of concrete is retarded compared with development at normal temperature
   b) The development of strength of concrete is accelerated compared with development at normal temperature
   c) The development of strength of concrete is advanced compared with development at normal temperature
   d) The development of strength of concrete is precocious compared with development at normal temperature

4. IS: 7861 part-2 deals with,
   a) Hot weathering concrete
   b) Cold weathering concrete
   c) Air entertained concrete
5. The polluted water is one which
a) Contains pathogenic bacteria
b) Consists of undesirable substances rendering it unfit for drinking and domestic use
c) Is safe and suitable for drinking and domestic use

6. The chemical most commonly used to increase speed of sedimentation of sewage is
a) Sulphuric acid
b) copper sulphate
c) lime

7. The main disadvantage of cement concrete sewers is
a) Difficulty in transportation due to heavy weight
b) Difficulty in construction
c) less strength

8. The correct relation between theoretical oxygen demand (TOD), Biochemical oxygen demand (BOD) and Chemical oxygen demand (COD) is given by
a) TOD > BOD > COD
b) TOD > COD > BOD
c) BOD > COD > TOD

9. The suitable system of sanitation for area of distributed rainfall throughout the year with less intensity is
a) combined system
b) Separate system
c) Partially separate system

10. The disinfection efficiency of chlorine increases by
(i) Decreasing the time of contact
(ii) Decreasing the temperature of water
(iii) Increasing the temperature of water

The correct answer is
a) Both (i) and (ii)
b) Both (ii) and (iii)
c) only (iii)
11. The addition of glass fibres are in the range of
   a) 0-6%
   b) 10%
   c) 15-20%

12. Which one is not the polymeric resin
   a) Polyester resin
   b) Epoxy resin
   c) Sulphates

13. In pre-stressed member it is advisable to use
   a) Low strength concrete and high tensile steel
   b) High strength concrete
   c) High strength concrete and high tensile steel

14. In a simply supported slab, alternate bars are curtailed at
   a) 1/4<sup>th</sup> of span
   b) 1/7<sup>th</sup> of span
   c) 1/5<sup>th</sup> of span

15. Distribution of a shear intensity over a rectangular section of a beam is,
   a) A parabolic curve
   b) A circular curve
   c) A straight line

**SECTION B**

**Answer any 3 full questions:**

3X5=15

1. If on-site slump test fails, should engineers allow the contractor to continue the concreting works? Comment.

2. What is the function of shear key in design of retaining wall?

3. Which type of reinforcement bar is more corrosion resistant from the following?
   A. epoxy-coated bars  
   B. stainless steel bars  
   C. galvanized bars. Justify.

4. What is the importance of air void content in bituminous pavements?

5. What is the difference between air chamber and surge tank?

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