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**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

| FORM NO. | J/ITEA02/06 |
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**Mid Semester Examination – Sept./Oct. 2019**

**Course: B. Tech in Civil Engineering** **Sem: V**

**Subject Name: Environmental Engineering**

**Subject Code: BTCVC 504**

**Max Marks: 20** **Date:-23/09/2019** **Duration:- 1 Hr.**

**Instructions to the Students:**

1. **Question 1 is compulsory.**
2. **Draw necessary diagram and sketches as and when required.**
3. **Assume suitable data as and when required.**

| | | Level | CO | Marks |
|---|---|---|---|---|
| Q. 1 | **Solve all the questions.** | | | 6 |
| | **1. The average quantity of water (in lpcd) required for domestic purposes according to IS code is _____.**<br>**a) 100**<br>**b) 120**<br>**c) 70**<br>**d) 135** | 1 | CO1 | 1 |
| | **2. Identify the correct relation between the following?**<br>**a) Dissolved solid = Total solid + Suspended solid**<br>**b) Dissolved solid = Total solid – Suspended solid**<br>**c) Total solid = Dissolved solid / Suspended solid**<br>**d) Dissolved solid = Suspended solid – Total solid** | 1 | CO2 | 1 |
| | **3. State whether the following statement is True or False.**<br>**Carbonate hardness can be removed by adding lime to water.**<br>**a) True**<br>**b) False** | 1 | CO2 | 1 |
| | **4. Which of the following process is used to remove the colloidal particles from water?**<br>**a) Chemical precipitation**<br>**b) Chemical coagulation**<br>**c) Ion exchange**<br>**d) Adsorption** | 2 | CO2 | 1 |
| | **5. In which type of settling, sedimentation of discrete particles takes place?**<br>**a) Zone settling**<br>**b) Compression settling**<br>**c) Hindered settling**<br>**d) Discrete settling** | 1 | CO2 | 1 |
| | **6. The pressure in the distribution mains does not depend on**<br>**a) Altitude to supply water**<br>**b) Fire fighting requirements**<br>**c) Availability of funds**<br>**d) Quality of water** | 2 | CO3 | 1 |

| | | | | |
|---|---|---|---|---|
| Q.2 | **Solve Any Two of the following.** | | | 3 X 2 |
| (A) | **What do you understand by treatment of water? Why it is necessary? Give an outline of various processes adopted for treatment of water with sketch.** | 1 | CO2 | 3 |
| (B) | **Explain different theory of filtration.** | 1 | CO2 | 3 |
| (C) | **Explain Break point chlorination in detail with diagram.** | 2 | CO2 | 3 |
| | | | | |
| Q. 3 | **Solve Any One of the following.** | | | 8 |
| (A) | **Estimate projected population for the year of 2019, and 2022 based on the following data by using various methods.** | 2 | CO1 | 8 |

| Year | Population |
|---|---|
| 1982 | 72000 |
| 1992 | 85000 |
| 2002 | 1,10,500 |
| 2012 | 1,44,000 |

| | | | | |
|---|---|---|---|---|
| (B) | **Design a Cascade Aerator having a discharge of 115 MLD. Assume suitable data.** | 2 | CO2 | 8 |
| | | | | |
| | ***** End ***** | | | |