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| Image result for adamas university logo | **ADAMAS UNIVERSITY**  **END SEMESTER EXAMINATION**  (Academic Session: 2020 – 21) | | |
| **Name of the Program:** | M. Tech. – Environmental Engineering | **Semester:** | I |
| **Paper Title:** | ENVIRONMENTAL SYSTEM ENGINEERING | **Paper Code:** | ECE61103 |
| **Maximum Marks:** | 50 | **Time Duration:** | 3 Hrs |
| **Total No. of Questions:** | 17 | **Total No of Pages:** | 2 |
| *(Any other information for the student may be mentioned here)* | 1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam. 2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page. 3. Assumptions made if any, should be stated clearly at the beginning of your answer. | | |

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| **Group A**  **Answer All the Questions (5 x 1 = 5)** | | | |
| 1 | Define Atmosphere. | **R** | **CO1** |
| 2 | What is Roto-Dynamic pumps? | **R** | **CO2** |
| 3 | Show the diagram of P – Trap. | **U** | **CO3** |
| 4 | Estimate the Hydraulic mean radius of a circular sewer running full. | **Evaluate** | **CO4** |
| 5 | What is the average distance of Earth from the Sun? | **R** | **CO1** |
| **Group B**  **Answer All the Questions (5 x 2 = 10)** | | | |
| 6 a) | Illustrate the inner core of the Earth. | **U** | **CO1** |
| **(OR)** | | | |
| 6 b) | Write about the components of Crust. | **R** | **CO1** |
| 7 a) | Discuss about the utility of various Canal intake structures. | **Creating** | **CO2** |
| **(OR)** | | | |
| 7 b) | Write about the advantages of various River intake structures. | **R** | **CO2** |
| 8 a) | Define Stop-cock of plumbing system. | **R** | **CO3** |
| **(OR)** | | | |
| 8 b) | Classify the water closets for sewage collection. | **U** | **CO3** |
| 9 a) | Elaborate Manning’s formula. | **Creating** | **CO4** |
| **(OR)** | | | |
| 9 b) | Define Self cleansing velocity of any sewer section. | **R** | **CO4** |
| 10 a) | Explain Bell type flushing cistern with diagram. | **Evaluate** | **CO3** |
| **(OR)** | | | |
| 10 b) | Show the Side Elevation of bowl urinals with proper dimensions. | **R** | **CO3** |
| **Group C**  **Answer All the Questions (7 x 5 = 35)** | | | |
| 11 a) | Explain Hydrologic cycle with Neat diagram. | **U** | **CO1** |
| **(OR)** | | | |
| 11 b) | Derive the equation for discharge of the steady radial flow to a Confined aquifer according to Dupuit’s theory. | **Evaluate** | **CO1** |
| 12 a) | Inspect the Canal intake structures with examples. | **Analyze** | **CO2** |
| **(OR)** | | | |
| 12 b) | Discuss about various parts of the Centrifugal pump with diagram. | **Creating** | **CO2** |
| 13 a) | Distinguish the factors governing the location of intake structures. | **Analyze** | **CO3** |
| **(OR)** | | | |
| 13 b) | Discuss about the Intakes for collecting surface water. | **Creating** | **CO3** |
| 14 a) | Explain the external pressure on flexible pipes buried in narrow trenches of compacted fills. | **U** | **CO4** |
| **(OR)** | | | |
| 14 b) | A 1 m. diameter pipe buried in a trench of 1.4 m. wide and filled with dry sand. The top of the pipe is 2.5 m. below the filled up surface. The pipe passes at right angles under a one lane road which carries a vehicle which loading consists of two concentrated 800 kg. loads at 1.8 m. apart transverse to the roadway. Find the maximum vertical force exerted on a unit length of pipe, if the pipe is made of steel and its thickness is 1 cm (assume, required values). | **Evaluate** | **CO4** |
| 15 a) | List the precaution to be taken before entering in a sewer. | **R** | **CO4** |
| **(OR)** | | | |
| 15 b) | Discuss about any two methods of Ventilation of sewers. | **Creating** | **CO4** |
| 16 a) | Explain the Displacement pumps. | **U** | **CO2** |
| **(OR)** | | | |
| 16 b) | Compare the centrifugal pumps and reciprocating pumps. | **Analyze** | **CO2** |
| 17 a) | Explain briefly about Tectonic theory. Also describe WILSON Cycle with appropriate diagram. | **U** | **CO1** |
| **(OR)** | | | |
| 17 b) | Categorize the different rocks according to its formation with examples. | **Analyze** | **CO1** |

Note: The Sample prepared by assuming 5 COs in a course, considering one CO for one Module.

1. If the COs are higher in numbers that can be managed by equating sub-divisional questions
2. If the COs are lower in numbers, the questions can be increased by equating the number of COs