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**UNIVERSITY OF PETROLEUM & ENERGY STUDIES  
DEHRADUN**

**End Semester Examination – December, 2017**

**Program/course: M.tech DM**

**Semester – II**

**Subject: Water supply and sanitation during emergency**

**Max. Marks : 100**

**Code : MDMT 203**

**Duration : 3 Hrs**

**No. of page/s: 2**

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**Section A - Answer all questions**

**(4 x 5= 20 Marks)**

1. What are the minimum objectives mentioned in terms of Quality, Quantity and Usage for the Dead body disposal.
2. A) What is meant by rapid assessment? Mention the steps involved in rapid assessment. Mention all the tools that is required during Rapid assessment
3. Define vector. Explain about various vectors that can transmit diseases during Emergency settlements. What control measures will you take to reduce risk to vector-borne diseases. Explain those methods.
4. a) What is cross contamination? How this can be avoided.  
b) How the transmission of disease happen from feces to new host. Mark the primary and secondary barriers?

**Section B - Answer all questions**

**(4 x 10= 40 Marks)**

5. Followed by a earthquake, around 50 families has been moved to emergency settlement. Each family consists of 4 members average. Each person is generating 15 liters of waste water per day. Design a soak pit, infiltration trench and Evaporation pan. (infiltration rate = 40 liters/m<sup>2</sup>/day).
  - a) There is space for a rectangular pit of 2 meter \* 3 meter. Calculate the depth required for soak pit.
  - b) Considering depth as 2 meter, what is the length of infiltration trench?
  - c) Assuming the evaporation rate as 10 mm/day. What is the area of Evaporation pan?
6. What are the minimum objectives mentioned in terms of Quality, Quantity and Usage for the Solid waste managemnet.
7. Write about the role of NGO in Disaster situation
8. Around 4000 families are living in a emergency settlement. Each family consists of 4 members. During the first week 4 died, 3 got infected by malaria, 6 got infected by Ebola. During second week No one died, 6 got infected by malaria, none got infected by

Ebola. During Third week, 3 died, 2 got infected by malaria, 1 got infected by Ebola. During the fourth week, No cases has been registered. Calculate the mortality rate, Morbidity rate of various diseases .

**Section C - Answer both**

**(2 X 20= 40)**

9. A) Explain the various ways of transporting solid waste from community to disposal sites during Emergency situation.  
B) What are the various types of clinical and non clinical waste arising from hospitals. Mention those various waste with three examples.
10. What is hygiene promotion. Mention various areas of Concern in Hygiene promotion. Explain the key principles of hygiene promotion. Mention various areas of training to promote hygiene.



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**Section A - Answer all questions**

**(10 x 6= 60 Marks)**

1. Explain the 7 core concepts of Environmental health.
2. Define vector. Explain about various vectors that can transmit diseases during Emergency settlements. What control measures will you take to reduce risk to vector-borne diseases. Explain those methods.
3. What is cross contamination. How this can be avoided. How the transmission of disease happen from feces to new host. Mark the primary and secondary barriers?
4. Mention various selection criteria to be considered before planning for excreta disposal during emergency. Explain about VIP Latrine pit, its advantage and disadvantage.

**Section B - Answer all questions**

**(4 x 10= 40 Marks)**

5. Followed by a earthquake, around 50 families has been moved to emergency settlement. Each family consists of 4 members average. Each person is generating 15 liters of waste water per day. Design a soak pit, infiltration trench and Evaporation pan. (infiltration rate = 40 liters/m<sup>2</sup>/day).
  - a) There is space for a rectangular pit of 2 meter \* 3 meter. Calculate the depth required for soak pit.
  - b) Considering depth as 2 meter, what is the length of infiltration trench?
  - c) Assuming the evaporation rate as 10 mm/day. What is the area of Evaporation pan?
6. What are the minimum objectives mentioned in terms of Quality, Quantity and Usage for the Dead body burial.
7. Write about the role of NGO in Disaster situation
8. Around 4000 families are living in a emergency settlement. Each family consists of 4 members. During the first week 4 died, 3 got infected by malaria, 6 got infected by Ebola. During second week No one died, 6 got infected by malaria, none got infected by Ebola. During Third week, 3 died, 2 got infected by malaria, 1 got infected by Ebola. During the

fourth week, No cases has been registered. Calculate the mortality rate, Morbidity rate of various diseases .

**Section C - Answer both Questions**

**(2 X 20= 40)**

9. A) What are the minimum objectives mentioned in terms of Quality, Quantity and Usage of Solid waste Management  
B) What are the various types of clinical and non clinical waste arising from hospitals. Mention those various waste with three examples.
10. What is hygiene promotion. Mention various areas of Concern in Hygiene promotion. Explain the key principles of hygiene promotion. Mention various areas of training to promote hygiene.