



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech (BME)/SEM-6/BME-604/2011**

**2011**

**HOSPITAL ENGINEERING &  
INFORMATION SYSTEM**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following :  $10 \times 1 = 10$ 
  - i) Which equipment is not present in radiology department ?
    - a) Ultrasound machine
    - b) MRI
    - c) CT scanner
    - d) X-ray machine.
  - ii) In case of an electrical shock, 'Let Go' current refers to
    - a) Threshold perception
    - b) Respiratory paralysis
    - c) Maximum current at which voluntary withdrawal possible
    - d) myocardial contraction.



- iii) A 'Transient' in electrical power supply causes
- a) sudden oscillations
  - b) sudden increase in voltage
  - c) sudden increase in current
  - d) sudden heating.
- iv) Incineration is a type of
- a) high temperature dry oxidation health care waste disposal process
  - b) chemical disinfection process
  - c) land disposal of health care waste
  - d) microwave irradiation of infectious waste.
- v) CSSD stands for
- a) Central Supply and Service Department
  - b) Central Sterile Supply Department
  - c) Critical Sterile and Supply Department
  - d) Central Supportive Supply Department.
- vi) Relative humidity in burn unit is
- a) 60% to 65%
  - b) 20% to 30%
  - c) 95% to 99%
  - d) 50% to 60%.
- vii) Patients get round-the-clock, immediate diagnosis and treatment for illness of an urgent nature and injuries from accidents from
- a) OPD
  - b) IPD
  - c) ICU
  - d) Casualty Department.
- viii) Intensive care unit is a kind of
- a) Line service of hospital
  - b) Auxiliary service of hospital
  - c) Supportive service of hospital
  - d) Secondary service of hospital.



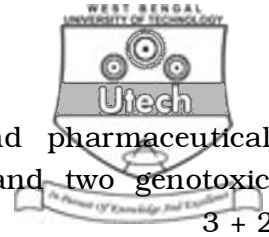
- ix) In inertization process of waste disposal, pellets are formed by
- 15% waste, 15% lime, 65% cement, 5% water
  - 65% waste, 15% lime, 15% cement, 5% water
  - 5% waste, 65% lime, 15% cement, 15% water
  - 15% waste, 5% lime, 15% cement, 65% water.
- x) Capacity of a hospital is specified by
- number of doctors
  - number of departments
  - number of beds
  - floor area of the building.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

- What is the importance of ISO certification in a hospital ?  
What are the proposed protocols for ISO certification ?  $3 + 2$
- Mention three phenomena which occur when a electrical current flows through biological tissues.
- State the important functions of PHC to cover all the essential elements of primary health care.
- Draw a hierarchical model to show the relation between production line managers and functional managers of a speciality care unit.
- “Hospital air conditioning is designed giving emphasis to patient and patient’s treatment than comfort.” Explain the statement with suitable examples.



7. What are the hazards of chemical and pharmaceutical wastes ? Name two infectious wastes and two genotoxic wastes. 3 + 2

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following. 3 × 15 = 45

8. What is the function of a power sub-station ? Name three types of sub-stations. Explain with a line diagram the components of a sub-station. 2 + 3 + 3 + 7
9. Describe the protocols for testing, acceptance and maintenance of equipment in a hospital. Mention the types of MRO's that a hospital can have. 8 + 7
10. What are the effects of EMI on Biomedical equipment ? Mention the preventive measures taken to eliminate EMI. Name the areas in a hospital where EMI filters are absolutely necessary. 5 + 5 + 5
11. How is centralized medical gas supply station beneficial for hospital ? Write major uses of medical gasses like oxygen, compressed air, nitrous oxide. What are the design parameters of supply source and distribution system ? State the safety precautions for gas handling. 2 + 5 + 6 + 2
12. What are the factors to be considered before selection of new hospital ? Define hospital. Classify hospital on the basis of ownership, objective and medicine. 7 + 2 + 6
13. What are the benefits of unified hospital information system ? State the role of HIS in blood bank and in-patient management. 3 + 6 + 6