



Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech (BME)/SEM-6/BME-604/2010

2010

**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) Medical grade compressed air must be free from

- | | |
|-----------|-------------------|
| a) Oxygen | b) Microbes |
| c) Water | d) None of these. |

ii) Hospital cryogenic system uses

- | | |
|-------------|-------------------|
| a) Oxygen | b) Carbon dioxide |
| c) Nitrogen | d) None of these. |

iii) The objective of a tender for purchase of equipment is

- | |
|-----------------------------------------|
| a) Invite technical and commercial bids |
| b) Invite technical bids |
| c) Invite commercial bids |
| d) Invite specifications of units. |



- iv) One of the major elements of PHC is
 - a) Sterilization of surgical tools
 - b) Endoscopy
 - c) Angiography
 - d) Mother and child health.
- v) Emergency unit is a kind of
 - a) Line service of hospital
 - b) Auxiliary service of hospital
 - c) Supportive service of hospital
 - d) None of these.
- vi) Most of the surgical equipment are sterilized using
 - a) Dry heat
 - b) Ethylene gas
 - c) Moist heat
 - d) None of these.
- vii) Sophisticated medical equipment are sensitive to
 - a) Heat and pressure
 - b) Heat and humidity
 - c) Temperature and humidity
 - d) Temperature and pressure.
- viii) The medical gas which is used for pneumatic drills is called
 - a) Oxygen
 - b) Nitrous oxide
 - c) Vacuum
 - d) Compressed air.



- ix) The gas which is used to anaesthetize the patient is called
- a) Oxygen b) Carbon dioxide
c) Nitrous oxide d) Hydrogen.
- x) Patients get acute, multidisciplinary and intensive observation and treatment from
- a) OPD b) ICU
c) IPD d) OT.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. What is in-house MRO in a hospital ? Mention the advantages and disadvantages of in-house MRO's. 1 + 4
3. Mention the precautions to be taken for electrical safety to patients and connected equipment in a hospital.
4. Write a short note on Design of Radiological department in hospital.
5. What are the important functions of medical gases like oxygen, nitrous oxide, vacuum and compressed air ? State two major safety precautions for gas handling. 4 + 1
6. Define clinical waste. With a flow-chart, describe the incineration techniques for clinical waste disposal. 1 + 4
7. What is HIS ? How could HIS be used in —
- a) Patient record management
- b) Billing. 1 + 2 + 2



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

8. What is an UPS ? What are the functions of an UPS in a hospital ? Name any four departments in a hospital where it is mandatory to route incoming power supply through UPS and why. $2 + 8 + 5$
9. Write in short about the gas supply, waste disposal, cleaning, sterilizing and storage system of hospital.
10. Briefly discuss about the Networking system used in hospital and its importance. 15
11. What are the major services of a 500-bed hospital ? Outline the characteristic features of all major “Line Services” of a 50-bed modern hospital. $5 + 10$
12. What is the difference between the hospital air conditioning and air conditioning in other type of buildings ? What are the needs of air conditioning in an operating room ? Briefly describe the design parameters of air conditioning in an operating room. Write the design parameters of air conditioning in Labour-delivery suit. $2 + 2 + 8 + 3$
13. Draw a model of an organizational hierarchical chart of a hospital. Describe the role of medical, paramedical and non-medical staffs to implement, monitor and control the policies of the hospital system. $7 + 8$

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