IIHMR DELHI | INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH

Post Graduate Diploma in Management (Hospital & Health Management)

PGDM – 2023-25 Batch

2nd Year – 3rd Semester End Examination

Subject & Code	:	**Hospital Planning and Facility Management-HOM 701**	**Reg. No.:**
Semester & Batch	:	**III, 2023-25**	**Date : 07-10-2024**
Time & Duration	:	**10:30 A.M.-01:30 P.M. (3 Hrs.)**	**Max. Marks : 70**

Instructions:

- Budget your time as per the marks given for each question and write your answer accordingly.
- Don't write anything on the Question Paper except writing your Registration No.
- Mobile Phones are not allowed even for computations.

Part A: Q.1 to Q.10 all questions are compulsory (10 X 2 Marks = 20 Marks)
One liner, MCQs, True/False

Q1. For planning & Design of the Hospital Pharmacy, what are the space requirements for a 300-bed hospital?

A) 8. 72sq.ft
b) 5.39 sq. ft
c) 5.00 sq. ft
d) 6. 62sq.ft

Q2. As per the Bureau of Indian Standards (BIS), how much space per bed is recommended for the ambulatory zone?

A) 9 Sq. meters
B) 11 Sq. meters
C) 10 Sq. meters
D) 60 Sq. meters

Q3. What is the average temperature kept in the Emergency Room?
A) 22 – 24 degrees
B) 20-24 degrees
C) 21 – 24 degrees
D) 20 -23 degrees

Q4. The ceiling height of the wards should not be less than?
A) 2.5m
B) 3.0m
C) 4.0m
D) 2.7m

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Q5. Hospital planning adapts to changes in healthcare delivery models, technology, and treatment protocols. True / False

Q6. Hospital planning teams often include specialists in healthcare administration, finance, and clinical operations True / False

Q7. Water requirement in the hospital per bed per day?

A) 300 to 400 liters per bed per day
B) 350 to 420 litres per bed per day
C) 450 to 500 litres per bed per day
D) 500 to 650 litres per bed per day

Q8. What is the ICU Size per sq. feet per bed including circulation area/nursing station / sanitary & ancillary accommodation?

A) 450 to 500 Sq. feet per bed
B) 350 to 500 Sq. feet per bed
C) 500 to 650 Sq. feet per bed
D) 300 to 500 Sq. Feet per bed

Q9. According to Rao Committee 1968, what is the ratio of Operating Rooms to Surgical beds?
A) 1 OR for 20 surgical beds
B) 1 OR for 60 surgical beds
C) 1 OR for 50 surgical beds
D) 1 OR for 25 surgical beds

Q10. For determining the parking space of the hospital what is the ratio of the one-car parking space per hospital bed in metropolitan towns?

A) TWO car parking spaces per two beds for metropolitan towns
A) ONE car parking space per two beds for metropolitan towns
B) THREE car parking spaces per two beds for metropolitan towns
A) FOUR car parking spaces per two beds for metropolitan towns

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Part B: Q.11 to Q.15 attempt any four questions (4 X 5 Marks = 20 Marks)
Short Notes

Q11. What are the principles of planning of OPD. Discuss various methods of reducing waiting time in a busy OPD of a medical College.

Q12. Explain different layout patterns of the indoor wards in hospitals and illustrate with proper layout.

Q13. Describe the innovative design for a smart ICU with a proper layout.

Q14. Discuss the planning considerations related to zoning of operation theatres – OTs in Hospitals and illustrate with proper layout.

Q15. What is the difference between CSSD and TSSU? Discuss the principles of functioning of a modern autoclave.

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Part C: Q.16 to Q.19 attempt any three questions (3 X 10 Marks = 30 Marks)
Long Notes

Q16. Jaipur, India, has recently experienced significant population growth and economic development. To meet the increasing healthcare needs of its residents, the city government has decided to construct a new, state-of-the-art hospital. The hospital will serve as a tertiary care facility, providing specialized medical services to patients from Jaipur and surrounding regions. The city's rapid urbanization has resulted in limited availability of suitable land for the hospital project. The government must carefully evaluate potential sites, considering accessibility, proximity to residential areas, and infrastructure development. The construction of a new hospital requires adequate infrastructure, including roads, water supply, electricity, and waste management systems. The government must ensure that the necessary infrastructure is in place to support the hospital's operations. The hospital's design must prioritize patient flow and accessibility. This includes ensuring clear signage, adequate waiting areas, and easy access to essential services. Given the growing environmental concerns, the hospital should incorporate sustainable design principles. This may include energy-efficient systems, rainwater harvesting, and waste management practices. The hospital's design should be sensitive to local cultural norms and traditions. This may involve incorporating elements of Indian architecture or providing facilities that cater to specific cultural needs.

Questions: (write in Brief)
Q1. How can the government address the challenge of limited land availability for the hospital project?
Q2. What are the key factors to consider when designing a hospital in a rapidly urbanizing city like Jaipur?
Q3. How can the hospital ensure patient safety and comfort while maintaining operational efficiency?
Q4. What are some sustainable design strategies that can be implemented in the hospital project?
Q5. How can the hospital design incorporate cultural sensitivity to meet the needs of the local population?

Q17. Sunrise Hospital is a 250-bed multispecialty hospital located in Pune, Maharashtra, India. The hospital was designed to cater to the growing population in the area, focusing on advanced healthcare services, operational efficiency, and the cultural needs of patients in India. The planning involved a multi-disciplinary team, including architects, healthcare professionals, and local government authorities, to ensure that the hospital met international standards while addressing local healthcare challenges. The hospital was built on a 15-acre plot, strategically located near major highways and public transportation systems, making it accessible to both urban and rural populations. Special attention was given to ensure the hospital could be reached quickly by ambulances, particularly for trauma and emergency cases. Adequate parking was also provided, which is often a challenge in Indian cities.
Sunrise Hospital incorporated:

- Family-Friendly Wards: Patient rooms were designed with additional space for family members to stay overnight, understanding the importance of family support in the healing process.
- Separate Male and Female Waiting Areas: To accommodate cultural preferences, separate waiting areas for male and female visitors were provided.

The hospital design integrated sustainable solutions within the constraints of a limited budget. Key sustainability features included:

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- Solar Panels: Used to supplement energy requirements, reducing dependence on the grid.
- Rainwater Harvesting and Greywater Recycling: Important in a region that faces frequent water shortages.
- Natural Ventilation and Daylight Use: The design maximized the use of natural ventilation and daylight to reduce energy costs, making the hospital more environmentally friendly and cost-efficient.

To improve the operational flow:

- Zonal Layout: The hospital was zoned into separate areas for outpatient services, inpatient care, emergency services, and surgical units. This helped in reducing patient movement and improving efficiency.
- Centralized Diagnostic and Support Services: Labs, imaging, and pharmacy were centrally located to ensure that patients could access these services quickly and easily, without the need for excessive movement across the hospital.

Sunrise Hospital focused on incorporating modern technology to enhance healthcare delivery:

- Telemedicine: Recognizing the rural healthcare gap in India, the hospital integrated telemedicine facilities, allowing remote consultations with specialists.
- Electronic Medical Records (EMR): The use of EMRs improved communication between departments and reduced paperwork, enhancing the patient experience and reducing the risk of medical errors.

The hospital was designed with the future in mind. Modular construction techniques were used to allow for future expansion, ensuring that additional floors or departments could be added with minimal disruption. Despite the ambition to include many modern and sustainable features, the project had to be completed within a strict budget. Some features, like a larger solar power installation, were scaled down to meet financial limitations. Dealing with Indian urban planning regulations, including delays in obtaining permits, access to utilities like water and electricity, and addressing traffic congestion around the site, posed additional challenges during construction.

Questions: (write in brief)

Q1. How can hospitals in India balance modern healthcare requirements with the cultural and social expectations of patients?
Q2. What are the key challenges in integrating sustainable and cost-effective solutions into hospital design, particularly in the Indian context?
Q3. How can telemedicine and technology be leveraged to bridge the healthcare gap between urban and rural areas in India?
Q4. What steps can be taken during the hospital planning process to allow for future expansion and adaptability without significant cost increases?

Q18. Discuss the planning and design of the Manifold / Medical Gas pipeline system – MGPS in hospitals with the necessary diagram / Layout plan.

Q19. Discuss the planning & design parameters of the nuclear medicine department. Explain the HOT LAB area of the nuclear medicine department with a proper layout plan.