

# OBM 752 — HOSPITAL MANAGEMENT

Anna University | Regulations 2017 | Sem VII (ECE/CSE/IT)

## UNIT I — ALL QUESTIONS WITH SHORT ANSWERS

Part A (2-Mark) | Part B (13-Mark) | Part C (15-Mark)

### PART A — 2 MARK QUESTIONS (Short Answer)

#### Q1. What is meant by equipment planning in hospitals?

Ans:

- Equipment planning is the systematic process of identifying, selecting, procuring, installing, and maintaining all medical and non-medical equipment required in a hospital.
- It ensures the right equipment is available at the right place, at the right time, and at the right cost.

#### Q2. Why is functional planning important?

Ans:

- Functional planning designs the hospital into specific zones (Public, Semi-Public, Private, Service) to ensure smooth patient flow, reduce infection, and improve operational efficiency.
- It minimizes unnecessary staff movement and ensures each department functions without interfering with others.

#### Q3. What should be the profile of a Human Resource Manager? (Unit II topic — common in Part A)

Ans:

- An HRD Manager should have: a degree in HR/Management, leadership skills, communication ability, knowledge of labour laws, ability to handle recruitment and training, and experience in healthcare administration.

#### Q4. What are the contents of line function?

Ans:

- Line functions in a hospital are direct patient-care activities: Medical care, Nursing care, Surgical services, Emergency services, and Laboratory/Radiology services. These are the primary functions of a hospital.

#### Q5. What are the guidelines to be followed for a training programme?

Ans:

- Guidelines: (i) Identify training needs clearly. (ii) Set measurable objectives. (iii) Choose appropriate training methods. (iv) Select qualified trainers. (v) Conduct training in a suitable environment. (vi) Evaluate training effectiveness after completion.

#### Q6. List the different types of transfer.

Ans:

- Types of transfer: (i) Production Transfer, (ii) Replacement Transfer, (iii) Versatility Transfer, (iv) Shift Transfer, (v) Penal Transfer, (vi) Remedial Transfer.

#### Q7. Give the list of space and equipment required in a hospital laundry.

Ans:

- Space: Soiled linen area, Washing area, Drying area, Ironing area, Clean linen storage.
- Equipment: Washing machines, Hydro-extractors, Flatwork ironer, Tumble dryers, Folding tables, Linen trolleys.

#### Q8. What are the main objectives of the central sterilization department?

Ans:

- Objectives: (i) Supply sterile instruments and materials to all departments. (ii) Prevent hospital-acquired infections. (iii) Centralize sterilization to ensure quality control. (iv) Reduce cost by avoiding duplication.

#### Q9. What is ISDN mode of communication?

Ans:

- ISDN (Integrated Services Digital Network) is a digital telephone network that transmits voice, data, and video simultaneously over a single line. In hospitals, it supports telemedicine, video conferencing, and fast data transfer between departments.

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**Q10. What all points are to be included in the safety programme of an institution?**

**Ans:**

- Safety programme should include: (i) Fire safety measures. (ii) Electrical safety. (iii) Patient fall prevention. (iv) Infection control. (v) Disaster preparedness. (vi) Security systems (CCTV, alarms). (vii) Employee safety training.

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**Q11. Give the technical aspects of equipment planning.**

**Ans:**

- Technical aspects: (i) Equipment specifications and standards. (ii) Space requirements for installation. (iii) Utility requirements (power, water, gas). (iv) Maintenance and AMC. (v) Training requirements for staff. (vi) Safety and infection control requirements.

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**Q12. What is the role of hospital administrators in legal matters?**

**Ans:**

- Hospital administrators must: ensure compliance with healthcare laws, maintain proper medical records, handle medical negligence cases, obtain necessary licenses, ensure patient rights are protected, and follow ethical guidelines.

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**Q13. What are the important challenges to hospital administration?**

**Ans:**

- Key challenges: (i) Human resource shortage, (ii) Financial constraints, (iii) Legal and ethical issues, (iv) Rapidly changing technology, (v) Quality maintenance (NABH/JCI), (vi) Patient management 24x7.

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**Q14. What is the need for manpower planning?**

**Ans:**

- Manpower planning ensures the right number of staff with the right skills are available at the right time. It prevents overstaffing (waste) and understaffing (poor care), reduces cost, and improves hospital efficiency.

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**Q15. When is a healthcare system considered an 'industry'?**

**Ans:**

- A healthcare system is considered an industry when it operates primarily for profit, produces services at scale, applies industrial management techniques (cost control, productivity), and serves customers rather than patients in a commercial sense.

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**Q16. Define Hospital Management.**

**Ans:**

- Hospital Management is the process of planning, organizing, directing, coordinating, and controlling all hospital activities — human, financial, and physical resources — to provide quality healthcare services efficiently.

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**Q17. What is the need for voltage fluctuation alarm?**

**Ans:**

- Voltage fluctuation alarms protect critical medical equipment (ventilators, ICU monitors) from power surges and drops. They alert staff immediately to take corrective action, preventing equipment damage and ensuring patient safety.

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**Q18. Identify the key differences between a hospital and an industry.**

**Ans:**

- Hospital: Service-oriented, 24x7, non-profit, deals with human life, decentralized decisions.
- Industry: Profit-oriented, fixed hours, produces tangible goods, centralized management.

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**PART B — 13 MARK QUESTIONS****Q1. Distinguish between a Hospital and an Industry. (★★★ Most Repeated)**

**Ans:**

A hospital is a service institution primarily concerned with human health and life. An industry is a commercial organization focused on producing goods/services for profit. The key conditions attributing to this distinction are:

Aspect	Hospital	Industry
Objective	Service / Patient care	Profit / Revenue generation
Product	Healthcare (intangible)	Goods (tangible)
Client	Patients (emotional, vulnerable)	Customers (rational)
Hours	24 x 7, 365 days	Fixed working shifts
Staff	Doctors, Nurses, Paramedics	Engineers, Workers, Managers
Decision Making	Decentralized, clinical judgment	Centralized hierarchy
Output Measure	Patient recovery, quality of care	Quantity, profit, productivity
Legal Accountability	Very high (medical ethics + law)	Moderate
Quality Standard	NABH, JCI, ISO standards	ISO, BIS standards
Inventory	Medicines, surgical items	Raw materials, finished goods
Environment	Emotional, life-critical	Commercial, goal-driven

*Key Point: A hospital cannot be run purely on commercial lines because human life is involved.*

## Q2. What are the Challenges in Hospital Administration? (★★★ Most Repeated)

**Ans:**

Hospital administration faces unique challenges not found in ordinary organizations:

Challenge	Details
1. Human Resource	Shortage of skilled doctors and nurses; high attrition; managing diverse staff groups
2. Financial	Rising cost of healthcare; insurance management; balancing service and affordability
3. Legal & Ethical	Medical negligence; patient consent; confidentiality of medical records
4. Infrastructure	Outdated equipment; space constraints; facility maintenance costs
5. Technological	Rapid medical technology changes; need for continuous staff retraining
6. Patient Management	24x7 emergency handling; patient expectations; infection control
7. Quality Assurance	NABH/JCI accreditation; Six Sigma implementation; continuous improvement
8. Community & Legal	Government regulations; community rights; compliance with health laws

*Six Sigma in Hospitals: DMAIC approach (Define-Measure-Analyze-Improve-Control) reduces errors to 3.4 per million opportunities.*

## Q3. Describe Hospital Planning in detail. Role of Architect. Bed Norms. (★★★)

**Ans:** Hospital planning is the systematic process of designing and organizing a hospital to meet community healthcare needs.

**Steps in Hospital Planning:**

1. Need Assessment	Study population size, disease patterns, bed requirements, existing facilities.
2. Site Selection	Accessible location, away from noise/pollution, space for future expansion.
3. Bed Planning (Norms)	Primary: 2-3 beds/1000 pop.   Secondary: 3-5/1000   Tertiary: 5+/1000.
4. Architect's Role	Designs zones, ensures patient flow, ventilation, lighting, infection control, accessibility.
5. Departmental Planning	OPD, IPD, ICU, OT, Emergency, Lab, Radiology, Pharmacy, Admin block.
6. Future Expansion	30% land reserved; modular construction; flexible design.

**Guiding Principles:** Flexibility | Accessibility | Safety | Efficiency | Economy

**Q4. Explain Equipment Planning — Technical Aspects, Commissioning Phases, Scheduling. (★★★)**

**Ans: Equipment planning ensures right equipment is identified, procured, installed, and maintained properly.**

**Technical Aspects:**

- Equipment specifications and performance standards
- Space and utility (power, water, gas) requirements
- Installation and safety guidelines
- Staff training requirements
- Infection control and maintenance requirements
- Cost estimation and budget allocation

**Phases of Commissioning:**

Phase	Activity
Phase 1	Planning and Budgeting — identify need, estimate cost
Phase 2	Procurement — tender, quotation, purchase order
Phase 3	Installation and Testing — set up, safety checks
Phase 4	Staff Training — operation, maintenance training
Phase 5	Commissioning and Handover — formal handover and start of use

**Methods of Scheduling Equipment Services:**

<b>Preventive Maintenance</b>	Scheduled regular check-ups before breakdown
<b>Predictive Maintenance</b>	Based on performance data and condition monitoring
<b>Corrective Maintenance</b>	Repair after equipment fails/breaks down
<b>AMC (Annual Maintenance Contract)</b>	Outsourced maintenance to vendor annually

**Q5. What is Functional Planning? Explain Functional Zones. (★★)**

**Ans: Functional planning is the process of dividing a hospital into specific operational zones to ensure smooth workflow, prevent infection, and allow efficient movement of patients and staff.**

Zone	Name	Departments
Zone 1	Public Zone	Reception, OPD, Pharmacy, Cafeteria, Waiting area
Zone 2	Semi-Public Zone	Wards, Laboratories, Radiology, Physiotherapy
Zone 3	Private Zone	Operation Theatre, ICU, Labour Room, Delivery Room
Zone 4	Service Zone	Laundry, Kitchen, CSSD, Mortuary, Engineering dept.

**Importance:**

- Reduces cross-infection between departments
- Ensures efficient and unobstructed patient flow
- Provides easy and quick staff movement
- Enables better emergency response
- Achieves optimum space utilization

**Q6. Discuss Hospital Planning and Functional Planning in Detail. (ND2020 ★★★)**

**Ans: This question combines Q3 and Q5 above. Write both topics together:**

- PART 1 — Hospital Planning: Definition → Need Assessment → Site Selection → Bed Norms → Architect Role → Departmental Planning → Expansion.
- PART 2 — Functional Planning: Definition → 4 Zones (Public, Semi-Public, Private, Service) → Departments in each zone → Importance of zoning.
- Conclude: Both hospital and functional planning together ensure a hospital is efficient, safe, and patient-friendly.

**Exam Tip: Allocate ~6-7 marks each. Draw a simple zone layout diagram for extra marks.**

**Q7. Discuss Functions of Hospitals and Six Sigma in Hospital. (ND2022 ★★)**

**Ans:**

**Functions of Hospitals:**

- Preventive function — immunization, health education, disease prevention
- Curative function — diagnosis and treatment of diseases
- Rehabilitative function — restoring patient to normal life after illness
- Research function — medical research, clinical trials
- Teaching function — training of doctors, nurses, paramedics
- Community function — public health programs, outreach services

**Six Sigma in Hospital:**

Six Sigma is a data-driven quality management approach that aims to reduce defects to 3.4 per million opportunities using the DMAIC model:

<b>Define</b>	Identify the problem — e.g., long OPD waiting time
<b>Measure</b>	Collect data — measure current waiting time
<b>Analyze</b>	Find root cause — too few doctors, poor scheduling
<b>Improve</b>	Implement solution — add doctors, fix appointment system
<b>Control</b>	Monitor results — sustain the improvement

**PART C — 15 MARK QUESTIONS**

**Q1. A 500-bed hospital is being set up. Describe complete planning: Hospital planning, Equipment planning, Functional planning. (ND2024 ★★★)**

**Ans: For a 500-bed hospital, the planning process involves three integrated phases:**

**PHASE 1 — Hospital Planning (5 marks):**

- Need Assessment: Calculate beds — 500 beds suggests a tertiary care hospital (5+/1000 population).
- Site Selection: Large land area, accessible roads, water and power supply, room for expansion.
- Architect's Role: Design traffic flow, emergency access, functional zones, ventilation, fire exits.
- Departments: OPD, IPD, Emergency, ICU (50+ beds), OT (10+ theatres), Lab, Radiology, Pharmacy, Admin.
- Expansion: Reserve 30% land; plan modular construction for future growth.

**PHASE 2 — Equipment Planning (5 marks):**

- Identify equipment for each department — ICU monitors, ventilators, OT tables, X-ray, MRI, CT scan.
- Budget: Estimate cost; plan tender process for purchase.
- Installation: Phase-wise — Plan → Procure → Install → Train → Commission.
- Maintenance: Plan AMC (Annual Maintenance Contract) for all major equipment.
- Staff Training: Ensure all medical staff are trained before commissioning.

**PHASE 3 — Functional Planning (5 marks):**

- Zone 1 (Public): Main entrance, OPD, Pharmacy, Cafeteria — accessible to all.
- Zone 2 (Semi-Public): 500-bed wards, Labs, Radiology — restricted access.
- Zone 3 (Private): ICU, OT, Labour Room — highly restricted, sterile zone.
- Zone 4 (Service): Laundry, Kitchen, CSSD, Engineering — back-end operations.
- Six Sigma: Apply DMAIC to reduce OPD wait time, surgical errors, and billing mistakes.

*Conclude: Integrated planning of all three phases ensures the 500-bed hospital operates efficiently, safely, and patient-centrally.*

**Q2. A medical college hospital — identify unique challenges, management structure, guidelines for smooth functioning. (AM2024 ★★)**

**Ans:**

**Unique Challenges of Medical College Hospital:**

- Dual role: Patient care + Teaching/Training — creates competing priorities.

- Large patient volume: Teaching hospitals attract complex cases, increasing workload.
- Staff hierarchy conflicts: Professors, residents, interns — chain of command issues.
- Research obligations: Staff must balance research, teaching, and clinical duties.
- Government control (if govt. hospital): Bureaucratic delays, fund constraints, policy restrictions.
- Quality vs. training trade-off: Training students may affect speed and quality of patient care.

**Management Structure (Government Medical College Hospital):**

<b>Dean/Director</b>	Overall academic and administrative head
<b>Medical Superintendent</b>	Manages all clinical and hospital operations
<b>HODs (Department Heads)</b>	Head each clinical and non-clinical department
<b>Nursing Superintendent</b>	Manages nursing staff and patient care
<b>Administrative Officer</b>	Handles finance, HR, records, procurement

**Guidelines for Smooth Functioning:**

- Clear separation of academic and administrative roles.
- Regular coordination meetings between Dean and Medical Superintendent.
- Structured duty rosters for residents and interns.
- Apply Six Sigma to reduce medical errors in teaching environment.
- Transparent procurement and fund management.
- Regular NABH audits to maintain quality standards.

**Q3. Biomedical equipment for an Orthopedic Hospital — purchase, installation, maintenance planning. (AM2024 Part B/C ★★)**

**Ans:**

**Equipment Needed for Orthopedic Hospital:**

- Diagnostic: X-ray machine, MRI, CT Scanner, Bone Densitometer.
- Surgical: Orthopedic OT table, C-arm (intraoperative X-ray), power tools (drill, saw).
- Rehabilitation: Physiotherapy equipment, traction units, CPM (Continuous Passive Motion) machine.
- Monitoring: Patient monitors, pulse oximeters, anaesthesia machines.

**Purchase Planning:**

- Prepare specifications with department heads.
- Float tenders; evaluate bids on quality, cost, and after-sales service.
- Negotiate AMC terms before purchase.
- Prefer equipment with local service support.

**Installation Planning:**

- Prepare rooms with correct power supply, earthing, and space.
- Vendor engineers to install; technical team to verify.
- Test all equipment before patient use.
- Certify installation with biomedical engineering team.

**Maintenance Planning:**

- Preventive: Monthly/quarterly scheduled maintenance.
- Predictive: Use performance logs to anticipate failures.
- Corrective: Fast response team for breakdown.
- AMC: Annual contract with vendor for major equipment like MRI, CT.

**QUICK REVISION — UNIT 1 AT A GLANCE**

Topic	Key Points to Remember
Hospital vs Industry	Service vs Profit   24x7 vs Fixed hours   Patients vs Customers   Decentralized vs Centralized

Challenges	HR + Finance + Legal + Technology + Quality + Patient mgmt + Community
Six Sigma	DMAIC   Target = 3.4 defects per million   Applied to OPD, OT, Billing
Hospital Planning	Need → Site → Bed Norms → Architect → Departments → Expansion
Bed Norms	Primary: 2-3   Secondary: 3-5   Tertiary: 5+ (per 1000 population)
Architect Role	Zone design + Patient flow + Safety + Ventilation + Infection control
Equipment Phases	Plan → Procure → Install → Train → Commission
Maintenance Types	Preventive   Predictive   Corrective   AMC
Functional Zones	Zone1: Public   Zone2: Semi-Public   Zone3: Private   Zone4: Service
Guiding Principles	Flexibility   Accessibility   Safety   Efficiency   Economy

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Compiled from: ND2020, ND2021, AM2022, ND2022, ND2023, AM2024, ND2024 Question Papers | OBM752 (Regulations 2017)