

## **SYLLABUS FOR THE POST OF :**

### **Manager - Information Technology (Infrastructure) (Postcode : 12)**

#### **PART- I**

##### **General Aptitude**

1. **Verbal Ability:** English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.
2. **Numerical Ability:** Numerical computation, numerical estimation, numerical reasoning and data interpretation.

##### **General Awareness**

Indian History, Indian Polity, Indian Economy, Indian Geography, Current Affairs(National & International)

##### **Business & Managerial Skills**

Introduction to Business Activities, Understanding Service Industries, Marketing Products and Services, Customer Relations, Understanding Business Activities, Basic Marketing

#### **PART- II**

##### **CORE AREA**

- An introduction to the data centre
- Various designs for classified (e.g. Tier I – IV)
- Site selection and environmental considerations
- The purpose of this unit is to help the candidate c
  - Understand the standards recommendations.
  - Explain how the availability of resources affects a design, including power, connectivity and water.
  - Understand how geography influences the location of a data centre, including air-quality and localised risks.
  - Understand how business needs can override other site selection criteria, e.g. communications latency.
  - Be aware of what future influences on design are likely to be.
- Foundation Certificate in Data Centre
- Architecture Design and Standards Recommendations  
key elements of a data centre design:
  - Align design and architecture to business strategy today and into the future.

- Business impact of decisions – looking at design from a TCO perspective over lifecycle.
- External Shell design.
- Space considerations.
- Structural Specifications.
- Applicable Standards – including fire resistance, fire suppression and security, etc.
- Codes & Regulations – including legislative requirements and voluntary initiatives (e.g. EU CoC, building sustainability – LEED, BREEAM)
- Other types of data centre design – covering modular data centres, scalable data centres, container based systems, fast provisioning, pre-fabricated data centres, Pods, etc.
- Future thinking on data centre design.
- Raised Access Floor and Design Best Practices, connecting the infrastructure with copper and fibre.
  - Define the relevant standards and regulations
  - Understand floor loading.
  - Explain the design considerations with regard to flooring.
  - Explain where air grille tiles and ramps should be sited and the role played in airflow management and management of the data centre.
  - Be aware of the implications of cutting floortiles and build up of zinc whiskers.
  - Understand current cabling standards and why they are important. Explain the technology behind copper cable and fibre cable technology.
  - Describe the various methods of cable containment and associated benefits.
  - Understand the design principles of communication cabling.
  - Be aware of recent/future developments in this area.
- IT Hardware
- Identify the roles and terminologies of servers.
- Understand the issues surrounding low server utilisation and the benefits of virtualisation.
- Understand the various types of storage equipment.
- Understand the various types of communications equipment.
- Be aware of technology developments, today's
- challenges and the associated standards & regulations around IT hardware future proofing data centre design.
- Understand the number of generations and versions that will be accommodated in the data centre throughout its life cycle.
- Understand container based systems and the benefits to IT hardware and data centre systems.
- Understand provisioning guidelines associated with IT, and how they affect managing data centre capacity.
- Be aware of innovative designs – Google, Facebook, Yahoo, Deutsche Bank, Kyoto cooling, eBay.

- Be aware that future IT loads will be more variable than in the past. Consider how to manage this, in a dynamic consumption world, through workload management.
- Cooling System Options and Environmental Control
- Demonstrate a knowledge of the fundamentals of cooling.
- Understand what cooling options are available and the advantages\disadvantages of each method, especially with respect to risk management.
- Understand different monitoring and control strategies including associated benefits.
- Be aware of the evolution of ASHRAE temperature, humidity and contamination recommendations around cooling and why they have changed.
- Be aware of how to implement the changes in an operational environment.
- Understand how cooling is affected by design considerations across the world.
- Understand how to make cooling systems more efficient – understand CoP/EER and operational efficiency across the whole lifecycle of the data centre including part load efficiency.
- Be aware of codes and regulations covering cooling.
- Be aware of likely future developments in this area.
- Heat re-use use and possible applications.
- Electrical Power Systems
- Understand electrical basics.
- Identify what is meant by power quality for the ICT load and understand the ITIC/CBEMA Power Quality Curve.
- Explain the term 'grid power supply'.
- Understand AC and DC power solutions.
- Identify the various types of UPS including scalable & modular designs for energy efficiency and eco-mode operation.
- Identify the various forms of energy storage, particularly battery and flywheel, and understand the limitations of each. Understand how power can be distributed in the data centre.
- Explain standby/backup power and understand emerging technologies in this area – including fuel cell technologies.
- Be aware of the codes and regulations covering electrical installation.
- Managing UPS capacity throughout the lifecycle of the data centre.
- Maintenance considerations.
- Renewable power – low carbon generation and its applicability to the modern data centre.
- Room Layout
- Understand equipment considerations.
- Identify IT cabinet types and their installation – including rack mount and blade configurations.
- Explain what is a hot aisle/cold aisle configuration and understand the benefits of air management.
- Understand how to incorporate non-standard equipment.

- Be aware of applicable standards.
- Future considerations aligned to IT roadmap, including liquid cooled servers.
- Fire Protection and Security Systems
- Explain the importance of fire regulations, how to prevent fire and identify the prime reasons for a fire suppression strategy.
- Understand the various systems for fire detection, warning and fire suppression; including water, water-mist & gaseous suppressants.
- Identify how any system design needs to consider fire.
- Understand the elements of a security plan.
- Understand the difference between physical security and electronic security.
- Be aware of surveillance policy and procedures along with associated regulations and standards.
- Building Automation and Energy Management Systems
- Define BMS & EMS.
- Understand what is involved in building automation protocols.
- Understand integrated systems and interfaces
- Be aware of measuring and monitoring, and re
- porting systems and the minimum requirements for a high energy-efficiency strategy.
- Identify applicable standards and likely future thinking.
- Understand the drivers in infrastructure maagement and why it is important.
- DCIM technology and future (IT and Facilities Management converging).
- Commissioning and Handover
- Understand what is the minimum commissioning
- scope of works.
- Identify project phases and the involvement of a training element for the future operational staff.
- Understand the elements of a commissioning plan.
- Be aware of the likely documentation needed.
- Understand the elements of maintenance plans, both planned and emergency including OEM & third-party contracts and
- SLAs.
- Understand how to deal with equipment moves, adds and change
- Identity and Access Management
- Information security Management

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