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.

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 understand the standards recommendations.
  - Understand 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.
o Business impact of decisions – looking at design from a TCO perspective over lifecycle.
  o External Shell design.
  o Space considerations.
  o Structural Specifications.
  o Applicable Standards – including fire resistance, fire suppression and security, etc.
  o Codes & Regulations – including legislative requirements and voluntary initiatives (e.g. EU CoC, building sustainability – LEED, BREEAM)
  o Other types of data centre design – covering modular data centres, scalable data centres, container based systems, fast provisioning, prefabricated data centres, Pods, etc.
  o Future thinking on data centre design.
• Raised Access Floor and Design Best Practices, connecting the infrastructure with copper and fibre.
  o Define the relevant standards and regulations
  o Understand floor loading.
  o Explain the design considerations with regard to flooring.
  o Explain where air grille tiles and ramps should be sited and the role played in airflow management and management of the data centre.
  o Be aware of the implications of cutting floor tiles and build up of zinc whiskers.
  o Understand current cabling standards and why they are important. Explain the technology behind copper cable and fibre cable technology.
  o Describe the various methods of cable containment and associated benefits.
  o Understand the design principles of communication cabling.
  o 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.

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 reporting systems and the minimum requirements for a high energy-efficiency strategy.
  • Identify applicable standards and likely future thinking.
  • Understand the drivers in infrastructure management 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.
• Identity and Access Management
• Information security Management

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