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( 6th Semester )

**BACHELOR OF COMPUTER APPLICATIONS**

Paper No. : BCA-6E3

**( Fundamentals of TCP/IP )**

*Full Marks : 75*

*Time : 3 hours*

**( PART : A—OBJECTIVE )**

*( Marks : 25 )*

*The figures in the margin indicate full marks for the questions*

SECTION—A

*( Marks : 15 )*

1. Tick (✓) the correct answer in the brackets provided : 1×10=10

(a) Which layer is responsible for process-to-process delivery?

(i) Network layer ( )      (ii) Transport layer ( )

(iii) Session layer ( )      (iv) Datalink layer ( )

(b) The main advantage of UDP is

(i) more overload ( )      (ii) reliable ( )

(iii) less overload ( )      (iv) fast ( )

(c) In IPv4 addressing, the subnet mask of /8 network is

(i) 255.0.0.0 ( )      (ii) 255.255.0.0 ( )

(iii) 255.255.255.0 ( )      (iv) All of the above ( )

- (d) The right to use a domain name is delegated by domain name registers which are accredited by
- (i) Internet architecture board ( )
  - (ii) Internet society ( )
  - (iii) Internet research task force ( )
  - (iv) Internet corporation for assigned names and numbers ( )
- (e) Internet protocol is \_\_\_\_ and \_\_\_\_ protocol. It ensures no guarantee of successfully transmission of data.
- (i) connectionless, reliable ( )
  - (ii) connection, non-reliable ( )
  - (iii) connectionless, no-reliable ( )
  - (iv) All of the above ( )
- (f) The 128 bits of an IPv6 address are represented in 8 groups of \_\_\_\_ bits each.
- (i) 12 ( )
  - (ii) 16 ( )
  - (iii) 8 ( )
  - (iv) 4 ( )
- (g) Routing that occurs when a router uses a manually configured routing entry, rather than information from a dynamic routing traffic is
- (i) static routing ( )
  - (ii) dynamic routing ( )
  - (iii) RIPv1 ( )
  - (iv) OSPF ( )
- (h) \_\_\_\_ identifies how far it is to the destination network and is based on a metric such as the hop count, cost, bandwidth, delay, and more and specifies the direction of the next-hop router or exit interface to reach the destination.
- (i) Link state routing protocol ( )
  - (ii) Classful routing protocol ( )
  - (iii) Distance vector routing protocol ( )
  - (iv) All of the above ( )
- (i) FTP to download file from the remote computer is
- (i) put ( )
  - (ii) get ( )
  - (iii) mput ( )
  - (iv) All of the above ( )

(j) Which command is used to look up users on a remote machine in Linux?

(i) Whois ( )

(ii) Figure ( )

(iii) Finger ( )

(iv) Find ( )

2. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark in the brackets provided : 1×5=5

(a) The network layer also called the Internet layer, deals with packets and connects independent networks to transport the packets across network boundaries. ( T / F )

(b) A TLD (top-level domain) is the lowest level of domain names in the root zone of the DNS of the Internet. ( T / F )

(c) The address of IPv6 Link local is ::/128. ( T / F )

(d) The Routing Information Protocol (RIP) sends routing update messages at regular intervals and when the network topology changes. ( T / F )

(e) A TELNET server generally listens on TCP Port 23. ( T / F )

#### SECTION—B

( Marks : 10 )

Answer the following questions : 2×5=10

1. What is Internet?
2. Explain namespace of DNS.
3. Explain the frame format of IP.
4. State the main differences between static routing and dynamic routing.
5. Explain 'whois' command.

#### ( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks for the questions*

1. (a) What is hypertext? Explain different types of service. 5
- (b) What is ICANN? Explain how IANA assigned IP addresses today. 5

**OR**

- (c) What is packet? Explain different types of IP header. 4
- (d) Explain different layers of TCP/IP. 6
- 2. (a) What is RARP? Explain the implementation of RARP for assigning dynamic IP. 5
- (b) What is ARP? Explain the four types of ARP implementation for resolving IP to MAC Address. 5

**OR**

- (c) Explain how DNS resolved Web address into corresponding IP Address. 4
- (d) What is WINS? Explain the implementation and configuration process of WINS. 6
- 3. (a) What is subnet mask? Explain Classless Inter-domain Routing Notation. 5
- (b) What is Default Gateway? Explain the transport protocol and their services. 5

**OR**

- (c) What is IPv6? Explain the features of IPv6. 4
- (d) Explain the address structure of IPv6. 6
- 4. (a) What is routing? Explain the system of Open Shortest Path First (OSPF). 5
- (b) Explain how RIP maintains routing table. 5

**OR**

- (c) Explain the difference between dynamic routing and static routing. 4
- (d) Explain the difference between Exterior Gateway Protocol Routing and Border Gateway Protocol Routing. 6
- 5. (a) Explain the difference between 'whois' and 'finger command'. 4
- (b) What is FTP? Explain different types of FTP command. 6

**OR**

- (c) Explain connection process of TELNET client and server. 5
- (d) Explain how to connect FTP server using secure connection. 5

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( 6th Semester )

**BACHELOR OF COMPUTER APPLICATIONS**

( Elective )

Paper : BCA-6E4

**( IT Act and Cyber Law )**

*Full Marks : 75*

*Time : 3 hours*

**( PART : A—OBJECTIVE )**

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

**SECTION—A**

( Marks : 15 )

**1.** Tick (✓) the correct answer in the brackets provided : 1×10=10

(a) The Information Technology (IT) Act, 2000 came into force on

(i) 17th December, 2000 (    )

(ii) 9th June, 2000 (    )

(iii) 1st June, 2000 (    )

(iv) 17th October, 2000 (    )

(b) The Information Technology Amendment Act, 2008 has come into force in

(i) October 2008 (    )

(ii) January 2009 (    )

(iii) October 2009 (    )

(iv) None of the above (    )

- (c) The Controller of Certifying Authorities (CCA) works under
- (i) the Prime Ministers Office ( )
  - (ii) the Reserve Bank of India ( )
  - (iii) the Ministry of Communication and IT ( )
  - (iv) the Autonomous Body ( )
- (d) Which of the following is not an example of intellectual property?
- (i) QR code ( )
  - (ii) Trademarks ( )
  - (iii) Copyright ( )
  - (iv) Patent ( )
- (e) Which Act provides legal framework for e-governance in India?
- (i) Indian Penal Code ( )
  - (ii) IT Amendment Act, 2008 ( )
  - (iii) IT Act, 2000 ( )
  - (iv) Cyber Law ( )
- (f) Which Section of the IT Act deals with the legal recognition of electronic records?
- (i) Section 4 ( )
  - (ii) Section 2 ( )
  - (iii) Section 5 ( )
  - (iv) Section 6 ( )
- (g) E-mail that appears to have been originated from one source when it was actually sent from another source is termed as
- (i) e-mail bombing ( )
  - (ii) e-mail spoofing ( )
  - (iii) e-mail spamming ( )
  - (iv) junk mail ( )
- (h) The first cyber crime in Mizoram happened in
- (i) 1998 ( )
  - (ii) 2005 ( )
  - (iii) 2009 ( )
  - (iv) 2010 ( )
- (i) The explicit portrayal of sexual subject matter is termed as
- (i) ponagraphy ( )
  - (ii) pornography ( )
  - (iii) sexual crime ( )
  - (iv) sexual harassing ( )
- (j) Which agency made the investigation related to India's First Cyber Crime Conviction?
- (i) Mumbai Police ( )
  - (ii) Chennai Police ( )
  - (iii) CBI ( )
  - (iv) Kerala Police ( )

2. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5
- (a) The original term 'Cyber' came from Greek. ( T / F )
- (b) Hacking Web server and taking control on another person's Web site is called as Web hijacking. ( T / F )
- (c) The main purpose of the Data Protection Act is to increase the security of computer systems. ( T / F )
- (d) Legal recognition of digital signatures is not a component of the IT Act, 2000. ( T / F )
- (e) An example of intellectual property is copyright. ( T / F )

#### SECTION—B

( Marks : 10 )

Answer the following questions : 2×5=10

1. What is data protection and privacy?
2. Define Online Dispute Resolution (ODR).
3. What is the main object and scope of the IT Act?
4. Distinguish between E-mail spoofing and E-mail bombing.
5. What is Digital Signature Certificate?

#### ( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks for the questions*

1. (a) Define Cyber Crimes and Cyber Law in the context of Indian Cyber Law. 5
  - (b) Write a short note on the evolution of cyber crime in India. 5
- OR**
- (c) Write the major needs of Cyber Laws for data protection and privacy. 5
  - (d) Explain with suitable example about Web hijacking and Web defamation. 5

2. (a) Write a short note on the essence of digital contracts. 5  
 (b) Write the punishment for Cyber Fraud, Cyber Pornography and Intellectual Property Crimes under the IT Act. 5

**OR**

- (c) Explain the IT Act, 2000 and its major amendments. 5  
 (d) Explain the certifying authorities and liabilities for law of digital contracts. 5
3. (a) Explain about copyright protection of content on the Internet. 5  
 (b) Write any three Cyber Crimes and their punishments. 5

**OR**

- (c) Explain organizational issues and jurisdictional issues of Cyber Law. 5  
 (d) Write the salient features of Law of Digital Contracts. 5
4. (a) Explain e-governance with the major applicability of the IT Act. 5  
 (b) Explain with example about denial of service attack. 5

**OR**

- (c) Explain about the ownership of copyright under the IT Act, 2000. 5  
 (d) Write the major issues addressed by the IT Act, 2000. 5
5. (a) Discuss about the License of Copyright. 5  
 (b) Write the punishment under the IT Act, 2000. 5

**OR**

- (c) Write the major uses of electronic records and digital signatures in the government and its agencies. 5  
 (d) Define the following cyber crimes : 1×5=5  
     (i) Cyber stalking  
     (ii) Cyber terrorism  
     (iii) Salami attack  
     (iv) Online gambling  
     (v) Cyber pornography

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( 6th Semester )

**BACHELOR OF COMPUTER APPLICATIONS**

Paper No. : BCA-6E6

**( Internet and E-commerce )**

*Full Marks : 75*

*Time : 3 hours*

**( PART : A—OBJECTIVE )**

*( Marks : 25 )*

*The figures in the margin indicate full marks for the questions*

SECTION—A

*( Marks : 15 )*

1. Tick (✓) the correct answer in the brackets provided : 1×10=10

(a) Which of the following describes e-commerce?

- (i) Doing business electronically (    )
- (ii) Doing business (    )
- (iii) Sales of goods (    )
- (iv) All of the above (    )

(b) Which one of the following is not one of the major types of e-commerce?

- (i) B2B (    )
- (ii) C2B (    )
- (iii) C2C (    )
- (iv) All of the above (    )

(c) Which segment do eBay, Amazon.com belong?

- (i) B2B (    )
- (ii) B2C (    )
- (iii) C2B (    )
- (iv) C2C (    )

- (d) Which of the following is not a key element of a business model?
- (i) Value proposition ( )
  - (ii) Competitive advantage ( )
  - (iii) Market strategy ( )
  - (iv) Universal standard ( )
- (e) Which of the following is an example of Web portal?
- (i) Amazon ( )
  - (ii) eBay ( )
  - (iii) Yahoo ( )
  - (iv) Facebook ( )
- (f) A strategy designed to compete in all markets around the globe is called a — strategy.
- (i) scope ( )
  - (ii) differentiation ( )
  - (iii) cost ( )
  - (iv) focus ( )
- (g) Unique value auction is mainly applies to
- (i) new products ( )
  - (ii) second-hand product ( )
  - (iii) engineering products ( )
  - (iv) All of the above ( )
- (h) Which of the following is a new and disruptive Web feature or service?
- (i) CDMA ( )
  - (ii) XML ( )
  - (iii) Postscript ( )
  - (iv) Blogs ( )
- (i) Which of the following is a useful security mechanism when considering business strategy and IT?
- (i) Firewall ( )
  - (ii) Encryption ( )
  - (iii) Decryption ( )
  - (iv) All of the above ( )
- (j) A business cannot be all things to all people. Instead, a business must
- (i) identify target customers ( )
  - (ii) identify the value of products/services as perceived by the customers ( )
  - (iii) identify the distribution of products ( )
  - (iv) Both (i) and (ii) ( )

2. State whether the following are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

(a) Encryption can be done on any bit string.

( T / F )

(b) Compared to B2C e-commerce, B2B e-commerce is smaller.

( T / F )

(c) Trust risk is not considered to be a drawback of Internet auctions.

( T / F )

(d) Paisapay is facilitated in flipkart.com.

( T / F )

(e) Using e-medias transactions occur in e-commerce.

( T / F )

#### SECTION—B

( Marks : 10 )

Answer the following questions :

2×5=10

1. Define e-commerce.
2. What is physical commerce?
3. What is cryptography?
4. Define cloud computing.
5. What is IT Act, 2000?

#### ( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks for the questions*

1. (a) Define transaction. What are the advantages of e-commerce? 2+3=5
- (b) Differentiate between traditional commerce and e-commerce. 5

**OR**

- (c) Differentiate between technical and non-technical limitations of e-commerce. 5
- (d) Explain B2B and C2C business model of e-commerce with suitable diagram. 5
2. (a) What is Web auction? Write the characteristics of Internet payment system. 2+3=5
- (b) Describe the process of payment with a credit card and a debit card. 5

**OR**

- (c) Distinguish between macropayment system and micropayment system. 5
- (d) Explain e-commerce strategies for marketing. 5
3. (a) Differentiate between e-business and e-commerce. 5
- (b) Explain the impact of e-business. 5

**OR**

- (c) Explain strategic positioning. 5
- (d) Explain business process and collaboration. 5
4. (a) Explain loosely couple system. 5
- (b) Differentiate between Web portal and Web services. 5

**OR**

- (c) Explain enterprise application integration. 5
- (d) What is Web service security? 5
5. (a) What is digital signature? Differentiate between encryption and decryption. 2+3=5
- (b) What are the essential requirements for safe e-payments/transactions? 5

**OR**

- (c) What is Internet security? State the functions of Firewall. 2+3=5
- (d) Explain different e-commerce security threats. 5

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( 6th Semester )

**BACHELOR OF COMPUTER APPLICATIONS**

Paper No. : BCA-601 (OC)

**( Environment and Ecology )**

( Old Course )

*Full Marks : 75*

*Time : 3 hours*

**( PART : A—OBJECTIVE )**

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

**SECTION—A**

( Marks : 15 )

**1. Tick (✓) the correct answer in the brackets provided : 1×10=10**

(a) Abiotic environment consists of

- (i) living things ( )
- (ii) non-living things ( )
- (iii) solar system ( )
- (iv) All of the above ( )

(b) Green plants constitute

- (i) complete food chain ( )
- (ii) 3rd trophic level ( )
- (iii) 2nd trophic level ( )
- (iv) 1st trophic level ( )

- (c) Ozone layer is formed in
- (i) stratosphere (    )
  - (ii) mesosphere (    )
  - (iii) troposphere (    )
  - (iv) exosphere (    )
- (d) A food chain which starts with green plants and culminates with carnivores is called
- (i) grazing food chain (    )
  - (ii) detritus food chain (    )
  - (iii) plasma food chain (    )
  - (iv) All of the above (    )
- (e) A diversity that indicates the number of species in a single community is called
- (i) gamma diversity (    )
  - (ii) beta diversity (    )
  - (iii) alpha diversity (    )
  - (iv) All of the above (    )
- (f) A species is said to be extinct when it is not seen in the wild at a stretch of
- (i) 50 years (    )
  - (ii) 75 years (    )
  - (iii) 100 years (    )
  - (iv) 200 years (    )
- (g) Noise pollution is a value greater than
- (i) 60 dB (    )
  - (ii) 80 dB (    )
  - (iii) 90 dB (    )
  - (iv) 100 dB (    )
- (h) Per year world population is growing more than
- (i) 60 million (    )
  - (ii) 80 million (    )
  - (iii) 90 million (    )
  - (iv) 100 million (    )

(i) Air pollutants mixing up with rain can cause

(i) low acidity ( )

(ii) high acidity ( )

(iii) acid rain ( )

(iv) pollutants ( )

(j) At present, world population is about

(i) 5.6 billion ( )

(ii) 6.6 billion ( )

(iii) 7.6 billion ( )

(iv) 8.6 billion ( )

**2.** Match Column—A and Column—B with the correct answer :  $\frac{1}{2} \times 10 = 5$

*Column—A*

*Column—B*

(a) Autotroph	( )	=	(i) Christ child
(b) Omnivores	( )	=	(ii) Ornithologist
(c) Chipko Movement	( )	=	(iii) Green plants
(d) Salim Ali	( )	=	(iv) Earnst Haeckel
(e) World Environment Day	( )	=	(v) April, 1986
(f) World Population Day	( )	=	(vi) 5th June
(g) Chernobyl Disaster	( )	=	(vii) December, 1984
(h) Bhopal Disaster	( )	=	(viii) 11th June
(i) El Niño	( )	=	(ix) Rats
(j) Ecology was coined by	( )	=	(x) Sunderlal Bahuguna

**SECTION—B**

( Marks : 10 )

Write notes on the following :

$2 \times 5 = 10$

1. Biotic components
2. Hot spot of biodiversity
3. Rainwater harvesting
4. Types of resource
5. Greenhouse effect

**( PART : B—DESCRIPTIVE )**

( Marks : 50 )

*The figures in the margin indicate full marks for the questions*

1. (a) What is environment? Discuss the scope of environment. 3+5=8

**OR**

- (b) What do you understand by the term 'ecology'? Discuss the structural features of ecosystem. 3+5=8

2. (a) What is ecological pyramid? Write a brief description of pyramid of numbers. 3+5=8

**OR**

- (b) What is energy in ecosystem? Write a note on energy flow in ecosystem. 3+5=8

3. (a) What do you understand by population explosion? Explain Malthusian doctrine in population growth. 3+5=8

**OR**

- (b) What is population density? Explain the population stabilization and sustainable development. 3+5=8

4. (a) What do you mean by water pollution? Mention its sources and control of water pollution. 3+5=8

**OR**

- (b) What is solid waste management? Discuss the sources and management of solid waste management. 3+5=8

5. (a) What is biodiversity? Mention the significants and benefits of biodiversity. 3+5=8

**OR**

- (b) What is sustainable development? How will you measure sustainable development? 3+5=8

6. (a) What is shifting cultivation? Write the impacts on land degradation. 5+5=10

**OR**

- (b) What is natural resource? Write note on the conservation of resources and alternative strategies. 4+6=10

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( 6th Semester )

**BACHELOR OF COMPUTER APPLICATIONS**

Paper : BCA–602 (ii) (OC)

**( Quality Management and Control )**

( Old Course )

*Full Marks : 75*

*Time : 3 hours*

**( PART : A—OBJECTIVE )**

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

**SECTION—A**

( Marks : 15 )

**1.** Tick (✓) the correct answer in the brackets provided : 1×10=10

(a) Total Quality Management (TQM) focuses on

- (i) employee (    )
- (ii) customer (    )
- (iii) supplier (    )
- (iv) Both (i) and (ii) (    )

(b) Which of the following involves analysis of customer needs, product and process interpretation for implementing quality control?

- (i) Quality planning (    )
- (ii) Quality control (    )
- (iii) Quality improvement approach (    )
- (iv) Quality process (    )

- (c) MRP uses which of the following elements to plan optimal inventory levels, purchases, production schedules and more?
- (i) Reduced inventory level ( )
  - (ii) Less scrap and rework ( )
  - (iii) Reduced freight cost ( )
  - (iv) Master production schedule ( )
- (d) In Kanban system, 'KAN' stands for
- (i) card ( )
  - (ii) signal ( )
  - (iii) pull ( )
  - (iv) push ( )
- (e) \_\_\_\_\_ is an essential element of the planning process.
- (i) Daily management ( )
  - (ii) Hoshin planning ( )
  - (iii) Quality policy ( )
  - (iv) Mission statement ( )
- (f) \_\_\_\_\_ is carried out to know the position of an organization.
- (i) Corporate analysis ( )
  - (ii) SWOT analysis ( )
  - (iii) Risk analysis ( )
  - (iv) Pressure for change ( )
- (g) Which of the following is for environment management?
- (i) ISO-9000 ( )
  - (ii) ISO-14000 ( )
  - (iii) ISO-26000 ( )
  - (iv) ISO-31000 ( )
- (h) Just-in-time was successfully implemented by
- (i) Toyota ( )
  - (ii) Honda ( )
  - (iii) Suzuki ( )
  - (iv) Volkswagen ( )

(i) \_\_\_\_\_ assigns the right person to the job, create and maintain positive workspace.

(i) QMS ( )

(ii) Product realization ( )

(iii) Management responsibility ( )

(iv) Resource management ( )

(j) Which of the following is responsible for quality objective?

(i) Low-level management ( )

(ii) Middle-level management ( )

(iii) Top-level management ( )

(iv) All of the above ( )

**2.** State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark in the brackets provided : 1×5=5

(a) Training and development helps organization to reduce employee turnover and absenteeism. ( T / F )

(b) The objective of ISO-9000 family of quality management is customer satisfaction. ( T / F )

(c) Documentation and data on existing products are the examples of external output. ( T / F )

(d) The primary requirement for organizational excellence is strategic focus. ( T / F )

(e) Just-in-time aimed at over-production. ( T / F )

#### SECTION—B

( Marks : 10 )

Answer the following questions : 2×5=10

**1.** What is ISO?

**2.** What is total quality management?

**3.** What is Kanban system?

**4.** What is benchmarking?

**5.** What do you mean by customer satisfaction?

**( PART : B—DESCRIPTIVE )**

( Marks : 50 )

*The figures in the margin indicate full marks for the questions*

1. (a) What is excellence? What are the factors of excellence? 5  
(b) Describe the relevance of TQM. 5

**OR**

- (c) Define quality. What are the benefits of TQM? 5  
(d) Explain the basic model of TQM. 5

2. (a) Define JIT. What are different elements of JIT? 5  
(b) Describe the equipment layout for JIT system. 5

**OR**

- (c) Discuss the concept of waste elimination. 5  
(d) Differentiate between MRP and JIT. 5

3. (a) What are the basic objectives of customer satisfaction surveying program during data collection? 5  
(b) What are the significances of planning? 5

**OR**

- (c) Describe the factors which affect process management. 10

4. (a) Explain the importance of education and training of an employee for the organization. 5  
(b) What are different types of benchmarking? 5

**OR**

- (c) Describe the approaches of defining a problem. 5  
(d) Define problem. What is different solving processes? 5

5. (a) Discuss the concept of quality system standards. 10

**OR**

- (b) Describe the role of ISO standards. 5  
(c) What is the difference among ISO-9001, ISO-9002 and ISO-9003? 5

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