

UG-508

BCA-13

**B.C.A. DEGREE EXAMINATION –
DECEMBER, 2018.**

Third Year

TCP/IP PROGRAMMING

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Draw and explain the connection establishment and termination process using 3-way handshake in TCP.
2. Explain why does lost acknowledgement not necessarily force the re-transmission of TCP segment.
3. Explain TCP/IP over ATM networks with a neat sketch.
4. Explain IP routing algorithm.
5. Explain the structure of IP header.

6. State the characteristics and features of UDP.
7. What are the terminologies used in UDP?

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. (a) Explain the working of DNS system using an example. (6)
(b) State its characteristics. (4)
9. The following is the TCP header in hexadecimal format.
04231017 01000311 00000234 62310234 00013426
(a) What is the destination port number?
(b) What is the sequence number?
(c) What is the source port number?
(d) What is the length of the TCP header?
(e) What is the acknowledgement number?
(f) What is the window size?
10. (a) Explain the concept of IP subnet addressing and subnet masking using an example for each. (6)
(b) “IP is connectionless unreliable best effort delivery protocol” – Justify the statement. (4)

11. Explain in detail about the TCP/IP layering reference model in detail.
12. Explain the levels of TCP/IP stack.
13. Explain the following terms.
 - (a) TCP/IP. (2)
 - (b) Client server. (2)
 - (c) Internet multicasting. (2)
 - (d) IP subnet mask. (2)
 - (e) UDP. (2)
14. Write an algorithm each for UDP client and UDP server, as per the following specifications.
 - (a) UDP client will send a number to the server between 1 to 100 randomly.
 - (b) UDP server will return the factorial of that number.

UG-509

BCA-14

**B.C.A. DEGREE EXAMINATION –
DECEMBER, 2018.**

Third Year

C++ AND OBJECT ORIENTED PROGRAMMING

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Write short notes on storage classes.
2. Write short notes on increment and decrement operator with suitable examples.
3. Discuss on structures in C++ with example code.
4. Briefly explain the concept of function overloading with suitable C++ code.
5. List out the various visibility labels of a member class in C++. Give the example program.

6. Write short notes on switch statements with example code.
7. Discuss about the macros.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Discuss in detail about various fundamental types corresponding to basic storage units of a computer with suitable C++ program.
9. Explain the following with suitable examples :
 - (a) Logical operators
 - (b) Bitwise logical operators
 - (c) Conditional expressions
 - (d) Increment and decrement operator.
10. Explain in detail about structures and classes and structures and arrays with suitable C++ examples.
11. Describe in detail about throwing and catching exceptions with suitable examples.
12. Explain in elaborate about the overview of C++ and structure of C++ program with suitable C++ code.

13. Discuss in detail about Iteration statements with suitable C++ examples.
 14. What is polymorphism? Explain the concepts of function overloading and operator overloading with suitable examples.
-

UG-510

BCA-15

**B.C.A. DEGREE EXAMINATION –
DECEMBER, 2018.**

Third Year

THEORY OF COMPUTER SCIENCE

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. $n(A) = 6, n(B) = 8, n(C) = 6, n(A \cup B) = 11, n(A \cap B) = 3,$
 $n(A \cap C) = 2$ and $n(B \cap C) = 5$. Find $n(A \cap B \cap C)$.
2. If $A \cap B \rightarrow C$, the show that $A = B \rightarrow C$.
3. Explain phase structure grammar and context sensitive grammar.
4. Partition $A = \{0,2,4,6,8,10\}$ with minsets generated by $B_1 = \{0,4,8\}$ and $B_2 = \{2, 10\}$.
5. Prove that maximum number of edges in simple graph with 'n' vertices is $n(n-1)/2$.

6. Find the truth value for $(P \rightarrow Q) \leftrightarrow (\neg P \vee Q)$.
7. Obtain grammar for the language.

$$L(G) = \{a^m b^n \mid m \neq n, m, n > 0\}.$$

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Show that $A \leq B \leftrightarrow A \cap B = A$.
9. Explain the different types of grammar.
10. Show the following equivalence with and without constructing the truth table.
- $$(P \rightarrow (Q \vee R)) \leftrightarrow (P \rightarrow Q) \vee (P \rightarrow R).$$
11. Define Turing machine. Design Turing machine to accept language $L(G) = \{0^n 1^n \mid n \geq 1\}$.
12. Define connected graph and directed graph. Show that every connected graph with n vertices must at least $(n-1)$ edges.
13. Define DFA and N DFA and explain with an example.
14. Define path, reachability and connected in detail.

UG-511

BCA-16

**B.C.A. DEGREE EXAMINATION –
DECEMBER, 2018.**

Third Year

INTRODUCTION TO INTERNET PROGRAMMING

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Explain the features of JAVA.
2. Write notes on various types of constructors.
3. Write short notes on switch case with an example.
4. Discuss about multithreading with suitable example.
5. Write a JAVA program to print the numbers in triangle shape using for loop.
6. Explain the concept overriding with an example program.
7. Explain about branching statements in JAVA.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Explain any two looping structures in JAVA.
 9. How will you implement multiple inheritance in JAVA ? Explain with an example.
 10. Define array. Explain the steps involved in the creation of array.
 11. What are the two types of package ? Explain about the packages.
 12. Explain API in detail.
 13. Define Thread. Explain the life cycle of thread with a neat diagram.
 14. Explain about the exception handling mechanism.
-

UG-512

BCA-17

**B.C.A. DEGREE EXAMINATION –
DECEMBER, 2018.**

Third Year

INTRANET ADMINISTRATION

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. How many TCP connections are used in TELNET? Explain the remote login process of TELNET.
2. What is SMTP? Explain the service offered by its components.
3. Differentiate between Internet and Intranet.
4. How do organization ensures security in an intranet? Explain the five security models used for chalking out the security plan and policy.
5. Write short note on firewall and its function.
6. Explain about distributed web services.
7. Explain the goals of WWW.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. What is an intranet? How it is different from internet? Explain the working of an Intranet with a neat diagram.
9. What are firewalls? Explain the three firewall architectures in detail.
10. Describe ARP as a communication protocol. Describe its message format and explain the various fields.
11. What is groupware? Describe any five broad range of applications associated with them.
12. Write short notes on :
 - (a) DMSP
 - (b) CGI.
13. Name any four editors used for Web Authority. Explain any six features which are desirable in an editor.
14. Explain in detail about the web based tools each with an example program.

UG-513

BCA-18

**B.C.A. DEGREE EXAMINATION –
DECEMBER, 2018.**

Third Year

MANAGEMENT PRINCIPLES AND TECHNIQUE

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. What is leadership? Bring out the approaches to understand the same.
2. What is an LPP? What its duality?
3. Solve graphically the LPP.

$$\text{Max} = Z = 3x + 5y$$

Subject to

$$x + 2y \leq 2000$$

$$x + y \leq 1500$$

$$y \leq 600$$

$$x, y \geq 0.$$

4. Draw the network and find the critical path,

Activity	A	B	C	D	E	F
Predecessor	-	A	A	B,C	-	E
Duration (Days)	2	3	4	6	2	8

5. Define model. List the advantages of modelling.
6. Is management arts or science? Explain your answer with proper justification.
7. Enumerate the application areas of replacement theory.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. List and explain the functions of management commencing from planning to control.
9. How to build an OR model? List down the benefits of this approach.
10. Give a solution algorithm to solve a transportation problem.

11. Draw the network and find the probability of completing the project within 75 days.

Activity	Preceded	To	T_m	T_p
A	-	2	4	6
B	A	8	12	16
C	A	14	16	30
D	B	4	10	16
E	C,B	6	12	18
F	E	6	8	22
G	D	18	18	30
H	F,G	8	14	22

12. Write notes on communications in detail.
13. What is decision making? Explain the various types of decision making in detail.
14. A manufacturer of patent medicines is Preparing a production plan on medicines A and B. There is sufficient raw materials available to make 20,000 bottles of A and 40,000 bottles of B, but there only 45,000 bottles into which either of the medicines can be put. Further it takes 3 hours to prepare enough material to fill 1000 bottles of A and it takes one hour to prepare enough material to fill 1000 bottles of B. and there are 66 hours available for this operation The profit is Rs.8/- per bottle for A and Rs.7/- per bottle for B. How Should the manufacturer schedule his production in order to maximize his profit?