(Please write your Exam Roll No.) *Exam Roll No. .....*

END TERM EXAMINATION

FOURTH SEMESTER [BCA] APRIL - MAY 2019

Paper Code: BCA-202	***Subject: Mathematics-IV***
Time: 3 Hours	***Maximum Marks: 75***

Note: Attempt five questions in all including Q no. 1 which is compulsory. Select one question from each unit.

Q1 Attempt **any five** of the following questions:- **(5x5=25)**

(a) If $C(15,3r)=C(15,r+3)$, find r.

(b) In how many ways can 50 different pearls be arranged to form necklace?

(c) Evaluate:- $\Delta^2 x^3$, where Δ forward operator.

(d) Find the $\text{Var}(3x+9y)$ such that $\sigma_x^2(Var \text{ of } x=3)$ and $\sigma_y^2(\text{Var of } y=5)$ and x and y are independent variable.

(e) $X \sim B(n,p)$ and moment generating function of $X=\left(\frac{1}{3}+\frac{2}{3}e^t\right)^5$. Find $P(x=1)$

(f) Show that $\Delta^3 y_2 = \nabla^3 y_5$

UNIT-I

Q2 (a) A computer password consists of a letter of the alphabet followed by 3 or 4 digits. Find **(7)**

(i) The total number of passwords that can be formed.

(ii) The total number of passwords in which no digit repeat.

(b) Using binomial theorem find the value of $\left(3+\sqrt{2}\right)^5-\left(3-\sqrt{2}\right)^5$. **(5.5)**

OR

Q3 (a) A delegation of 6 members is to be sent abroad out of 12 members. In how many ways can the selection be made so that. **(7)**

(i) A particular member is included?

(ii) A particular member is excluded?

(b) A bag contains 3 black and 4 white balls. Two balls are drawn at random one at a time without replacement. What is the probability that second balls white. **(5.5)**

UNIT-II

Q4 (a) Find the probability that atmost 2 defective fuses will be found in box of 200 fuses if experiences shows that 2% of such fuses are defective $\left(e^{-4}=0.0183\right)$ **(5.5)**

(b) A random variable X with probability density function f(x) given by

$$f(x)=\begin{cases}2e^{-2x}; & x\geq 0\\ 0; & otherwise\end{cases}$$

What is the probability that X is not less than 2 and also find moment generating function? **(7)**

OR

P.T.O.

P1

Q5 (a) The marks of 1000 BCA students in a college are found to be normally distributed with mean 70 and var 25. Find number of students whose marks will be between (i) 60 and 75 (ii) more than 75. **(6)**

(b) A and B throw a die for a prize of Rs. 11, which is to be won by the player who first throws 6. If A has the first throw, what is the A's expectation. **(6.5)**

UNIT-III

Q6 (a) From the following table, find the number of students who obtained **(6.5)**

(i) less than 45 marks

(ii) Marks 40 to 45

Marks	30-40	40-50	50-60	60-70	70-80
No. of students	31	42	51	35	31

(b) Find the polynomial of the lowest possible degree which takes the value 3 12, 15, -21. When the arguments (x) are 3, 2, 1, -1 respectively. **(6)**

OR

Q7 (a) Find the real roots of the equation $x\log_{10}x=1.2$ by N-R up to 4 iterations. **(6.5)**

(b) Evaluate by bisection method of $x=(29)^{\frac{1}{3}}$. **(6)**

UNIT-IV

Q8 (a) Solve the following equations by Gauss Elimination method **(5.5)**

$2x_1+x_2+4x_3=12;\quad 8x_1-3x_2+2x_3=23;\quad 4x_1+11x_2-x_3=33$

(b) A river is 80 feet wide. The depth d(in feet) of the river at a distance x from one bank is given by the following table. **(7)**

X	0	10	20	30	40	50	60	70	80
D	0	4	7	9	12	15	14	8	3

Find approximately the area of the cross section of the river using Trapezoidal and Simpson $\frac{1}{3}$ rule.

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY 2019

Paper Code: BCA 204 **Subject: Web Technologies**

Time : 3 Hours **Maximum Marks :75**

Note: Attempt any five questions including Q. No. 1 which is compulsory. Select one question from each unit.

Q1. Attempt **any five** of the following: **(5x5=25)**

a) Differentiate between Java and Java Script.

b) Differentiate between Container and Empty Tag. Give five examples of Empty Tags.

c) Write a note on History of Internet.

d) What is Cascading Style Sheet? Write advantages of using CSS with HTML.

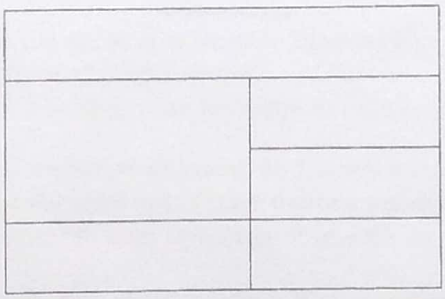
e) Explain Document Object Model.

f) Explain Web Portal and its types.

g) Explain Font Tag in HTML by giving an example.

Unit-I

Q2. What are frames? What are advantage and disadvantage of using frame while designing web site? Write program to design the following frame and link each frame with 5 different web pages. **(12.5)**



Q3. a) What is Hotspot? Explain different types of hotspots by considering an Image Map of your choice. **(6.5)**

b) Design a student registration form in HTML which includes Name, Password, Gender, Address, Hobbies and a Text area for Comments. **(6)**

Unit-II

Q4. a) Briefly explain various built-in objects in Java Script by giving a suitable example of each. Also difference between "Inner HTML", "Outer HTML" and "Inner Text". **(6.5)**

b) Write a program in Java Script that receives a number from the user and displays the factorial of that number. **(6)**

Q5. a) Explain various types of CSS with the help of an example. **(6.5)**

b) Explain different ways through which Javascript code can be attached with web page. **(6)**

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Unit-III

Q6. What is the use of Filters and Transitions in DHTML? Write a program to show transition effect on an image of your choice. **(12.5)**

Q7. a) Write a program to show the use of onclick, on mousehover and onmouseout events. **(6)**

b) Differentiate between HTML and DHTML. Explain any five filters of your choice that can be applied to a given image. **(6.5)**

Unit-IV

Q8. a) Differentiate between HTML and XML. **(6)**

b) What is Web Hosting and Web Publishing? Explain any web publishing tool in brief. **(6.5)**

Q9. a) What is XML? Briefly explain its various building blocks. **(6.5)**

b) Explain various XML Parsers in details. **(6)**

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] APRIL-MAY 2019

Paper Code: BCA-206 **Subject: Java Programming**

Time: 3 Hours **Maximum Marks :75**

Note: Attempt any five questions including Q.no.1 which is compulsory.

(5x5=25)

Q1 Answer **any five** the following:-

(a) Discuss all the three usages of final keyword?
(b) How can we pass parameters to an applet?
(c) What is the difference between int and Integer?
(d) Differentiate between adapter and inner classes.
(e) What is DriverManager class in JDBC?
(f) What is the use of this and super keyword?
(g) What do you mean by Daemon thread? How can you set priority of a thread?

Q2 (a) How is method overloading different from method overriding? Explain with the help of suitable code. **(6)**

(b) What is a constructor? Does Java provide default constructor? Does Java provide a default copy constructor? Explain your answer with suitable example. **(6.5)**

Q3 (a) What is inheritance? Explain different types of inheritance in Java with suitable diagram and small segment of codes. **(6.5)**

(b) What are cookies? Are they good or bad? Justify. **(6)**

Q4 (a) Explain the life cycle of a thread. Discuss the process of thread synchronization with the help of appropriate code. **(6)**

(b) Explain any 5 String class methods in detail. **(6.5)**

Q5 (a) Differentiate between checked and unchecked exceptions. Write a program to demonstrate the concept of user defined exceptions. **(7.5)**

(b) Write a program to copy contents of one file to another. **(5)**

Q6 (a) What is delegation event model? Write program to explain keyboard event handling. **(7.5)**

(b) Differentiate between swing and AWT. **(5)**

Q7 (a) Write a program to change background color of applet using three scrollbars representing red, green and blue? **(7.5)**

(b) Write short notes on InetAddress class and its factory methods. **(5)**

Q8 (a) What is JDBC? Explain all JDBC drivers in detail. **(7.5)**

(b) Write a servlet to display current date and time. **(5)**

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY- JUNE 2019

Paper Code: BCA-208 **Subject: Software Engineering (Batch 2011 onwards)**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q.1 which is compulsory. Select one question from each unit.

Q1 Answer all of the following question: **(2.5x10=-25)**

(a) What is debugging and why is it so hard?
(b) Define Data Structure Metrics.
(c) Differentiate between structural and functional testing.
(d) Discuss Feasibility Study and its significance.
(e) What are requirement elicitation techniques? Discuss any one technique in brief.
(f) Differentiate between Software Reverse Engineering and Software Re-Engineering.
(g) What is context diagram? How is it different from Level 1 DFD?
(h) Discuss cyclomatic complexity and its significance.
(i) Discuss various factors of software management dependency.
(j) Discuss various size estimation metrics and their significance.

UNIT-I

Q2 (a) Discuss the organization of good SRS along with its characteristics. **(6)**
(b) Discuss Prototype Model in detail. What are its various issues How is it different from Evolutionary Model. **(6.5)**

Q3 (a) What is the Software Development Life cycle? List various SDLC models. **(6)**
(b) Draw and label and well described Use Case diagram and level 1 DFD for hotel management system. Make assumptions as required. **(6.5)**

UNIT-II

Q4 (a) Discuss COCOMO Model in detail. **(8.5)**
(b) An application has the 10 low external inputs, 12 high external outputs, 20 low internal logical files, 15 high external interface files, 12 averages external inquires, and a value of complexity adjustment factor of 1.10. What are the unadjusted and adjusted function point counts? **(4)**

Q5 (a) Using the Watson-Felix model on a software development expected to involving 8 person-years of effort. **(6)**
(i) Calculate the number of lines of source code that can be produced.
(ii) Calculate the duration of the development.
(iii) Calculate the productivity in LOC/PY
(iv) Calculate the average manning
(b) What is Risk? What are various Risk Management Activities? **(6.5)**

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UNIT-III

Q6 (a) Describe the key features of Object Oriented based software. **(6.5)**

(b) Write a program to find the maximum of three numbers. Find Halstead token count metrics for this program. **(6)**

Q7 Discuss the following:- **(4+4+4.5)**

(a) Module Coupling and its types

(b) Module Cohesion and its types.

(c) Object Oriented Designing

UNIT-IV

Q8 (a) Write short notes on following **(any two):-** **(8)**

1. DD-Path Testing
2. Boundary Value Analysis
3. Cause Effect Graph Testing

(b) Generate all the independent paths required for testing program that finds all even numbers between 1-50. **(4.5)**

Q9 (a) What is software maintenance? Discuss its various categories and issue during maintenance. **(4.5)**

(b) Explain Taute's maintenance model with the help of a diagram. **(4)**

(c) Discuss Configuration Management in software development. **(4)**

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] APRIL- MAY 2019

Paper Code: BCA 210 **Subject: Computer Networks**

Time : 3 Hours **Maximum Marks :75**

Note: Attempt any five questions including Q. No. 1 which is compulsory. Select one question from each unit.

Q1. Attempt **any five** of the following: **(5x5=25)**

a) Differentiate between LAN, MAN and WAN.

b) Write a short note on DNS.

c) Differentiate between TDM and FDM?

d) How router boots up.

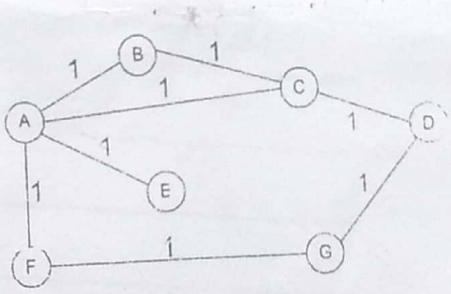
e) What is the differences between physical & logical address? Give examples.

f) Discuss 4 different topologies in detail with examples.

Unit-I

Q2. a) Explain the process of link state routing. Explain the events when the routing table is exchanged between routers? **(6)**

b) For the following topology, find the best path between each pair of nodes maintained in routing table using link state routing. Show the status of routing table at router A: **(6.5)**



Q3. Discuss the different components required for data communication? Compare OSI and TCP/IP models. Discuss different layers & their functions briefly. **(12.5)**

Unit-II

Q4. a) What is multiplexing? Explain various types of multiplexing. **(6.5)**

b) Discuss ISDN, its services & layers. **(6)**

Q5. a) What do you understand by the error detection and error correction? Explain any one of the error correction technique with suitable examples? **(6)**

b) Which layer(s) is responsible for error detection and correction in OSI model? **(6.5)**

Unit-III

Q6. a) What is flow control? Which two layers provide the functionality of flow control? How does their work differ? **(6)**

P.T.O.

b) Differentiate between circuit switching, packet switching, and message switching. Which one the following switching is shown in figure (a), figure (b) and figure (c)? Justify your answer. **(6.5)**

Figure (a)

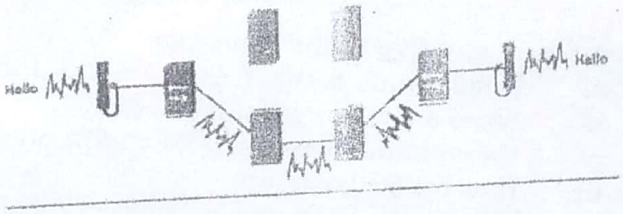


Figure (b)

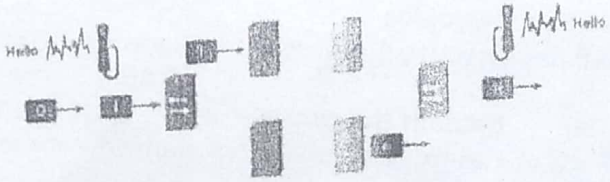
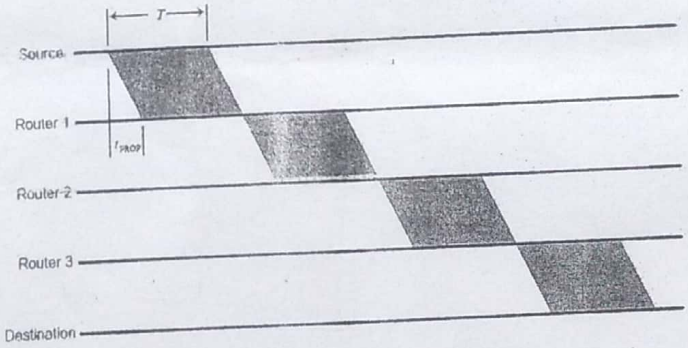


Figure (C)



Q7. What do you understand by routing? Explain any routing protocol in details? Differentiate between static & dynamic routing. **(12.5)**

Unit-IV

Q8. a) What are functions of session layers, presentation layers & applications in OSI models? **(6.5)**

b) Explain three way handshaking in TCP. **(6)**

Q9. a) Compare TCP and UDP protocols. **(6)**

b) Explain TCP packet format in detail. **(6.5)**

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