END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY 2017

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

Note: Attempt any five questions including Q no.1 which is compulsory. Select one question from each unit. Use of scientific calculator is allowed.

Q1   (a) Show that $E^r = \left(\mu + \dfrac{\delta}{2}\right)^{2r}$ **(2.5)**

(b) Estimate the missing term in the following table   **(2.5)**

x	0	1	2	3	4
f(x)	1	3	9	-	81

(c) A random variable x has the following probability function   **(2.5)**

x	-2	-1	0	1	2	3
f(x)	0.1	k	0.2	2k	0.3	k

find the value of k.

(d) If a random variable has a Poisson distribution such that $P(1) = P(2)$, find the mean of the distribution.   **(2.5)**

(e) For a normally distributed variable with mean 1 and S.D 3, find the probability that $3.43 \le x \le 6.19$ **(2.5)**

(f) If X and Y are independent binomial variables such that X~b(5, 1/2), Y~b(7, 1/2). Find P [X+Y=3].   **(2.5)**

(g) Find the Lagrange interpolating polynomial that fit the following data values.   **(2.5)**

x	-1	2	3	4
f(x)	-1	11	31	69

Also interpolate at x=1.5

(h) Events A and B are such that   **(2.5)**

$P[A \cup B] = \dfrac{3}{4}$, $P[A \cap B] = \dfrac{1}{4}$, and $P[\bar{A}] = \dfrac{2}{3}$ Find P[B] and $P[A \cap \bar{B}]$

(i) The expected value of a random variable x is 2 and its variance is 1. Find the variance of 3x+4.   **(2.5)**

(j) If two regression coefficients are 0.8 and 0.2. What would be the value of coefficient of correlation?   **(2.5)**

UNIT-I

Q2   (a) A bag contains 40 tickets numbered 1,2,3,..,40 of which four are drawn at random and arranged in ascending order $(t_1 < t_2 < t_3 < t_4)$ Find the probability of t_3 being 25.   **(6.5)**

(b) The probability that Nirmal will solve a problem is 2/3 and the probability that Satyajit will solve it is ¾. What is the probability that (i) the problem will be solved (b) neither can solve it.   **(6)**

Q3   (a) The content of three urns are: 1 white, 2 red, 3 green balls; 2 white, 1 red, 1 green balls and 4 white, 5 red, 3 green balls. Two balls are drawn from an urn chosen at random. These are found to be one white and one green. Find the probability that the balls so drawn come from the third urn.   **(6.5)**

(b) For what value of n is $3.^{n+1}c_3 = 7.^n c_2$?   **(6)**

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UNIT-II

Q4 (a) If the moment generating function of normal distribution is $M_x(t) = e^{2t+32t^2}$. Find $P[-2 \le X \le 6]$. **(6.5)**

(b) Calculate the coefficient of rank correlation from the following- **(6)**

x	4	20	6	13	9	13	6	19	25	15
y	16	65	9	48	24	33	16	57	40	16

Q5 (a) Find E[X], $E[X^2]$ and variance for the following distribution. **(6.5)**

X	8	12	16	20	24
P(x)	1/8	1/6	3/8	1/4	1/12

(b) From the given data obtain the two regression equations using the method of least square. **(6)**

x	4	20	6	13	9	13	6	19	25	15
y	16	65	9	48	24	33	16	57	40	16

UNIT-III

Q6 (a) Express $f(x) = 2x^3 - 3x^2 + 3x - 10$ in factorial form and hence evaluate $\Delta^3 f(x)$. **(6.5)**

(b) Using Newton-Raphson method evaluate to two decimal figures, the root of the equation $e^x = 3x$, lying between 0 and 1. **(6)**

Q7 (a) Use Newton's interpolating formulae to find y when x= 1.85 and x= 2.4 from the data. **(6.5)**

x	1.7	1.8	1.9	2.0	2.1	2.2	2.3
$y = e^x$	5.474	6.050	6.686	7.389	8.166	9.025	9.974

(b) Find a root of $x^3 - 5x + 3 = 0$, by Newton-Raphson method. **(6)**

UNIT-IV

Q8 (a) Solve by Jacobi's Method- **(6.5)**

$$4x + y + 3z = 17$$
$$x + 5y + z = 14$$
$$2x - y + 8z = 12$$

(b) Given that

x	1.0	1.1	1.2	1.3	1.4	1.5	1.6
y	7.989	8.403	8.781	9.129	9.451	9.750	10.031

Find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ at x = 1.1 and x = 1.6. **(6)**

Q9 (a) Apply LU Method to solve the equations 3x+2y+7z=4, 2x+3y+z=5, 3x+4y+z=7. **(6.5)**

(b) Calculate the value of $\int_0^{\pi/2} Sinx\,dx$ by Simpson's 1/3 rule using 11 ordinals. **(6)**

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY 2017

Paper Code: BCA-204	**Subject: Web Technologies** **(Batch: 2011 onwards)**
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   Explain following in brief **(any ten)**:-   **(2.5x10=25)**
(a) SMTP
(b) XML Parser
(c) Java Vs Java script
(d) <marquee>
(e) Class Vs ID Selector
(f) HTTP
(g) Get Vs Post Method
(h) NaN
(i) <font?
(j) Hypertext
(k) Container Vs Empty tags
(l) MIME

UNIT-I

Q2   Design a HTML Form for an Employee. Include following elements:
(a) Name (b) Qualification (c) Designation (d) Gender (e) Address (f) Hobbies.
(12.5)

Q3   (a) What are HTML Lists? Explain its types with example.   **(8.5)**
(b) Write a code to design following Frame: **(4)**

UNIT-II

Q4   (a) Write program to implement the usage of onmouseover and onmouseout events.   **(6.5)**
(b) Write a program in Java Script to find factorial of number using functions.
(6)

Q5   (a) What are Cascading Style Sheets? Explain different types of style sheets with the help of code.   **(8.5)**
(b) Explain following methods with example: **(4)**
(i) abs() (ii) replace() (iii) charAt() (iv) getDate()

UNIT-III

Q6   (a) Explain following filters **(any two)**:-   **(6)**
(i) Mask (ii) Blur (iii) Wave
(b) Briefly explain Document Object Model.   **(6.5)**

Q7   Explain all the four types of positioning in DHTML with example.   **(12.5)**

UNIT-IV

Q8   (a) What is XML? Briefly explain its various Building Blocks.   **(8.5)**
(b) Differentiate between HTML and XML.   **(4)**

Q9   Explain Web Publishing in detail. What is its need? Also tell about any Web Publishing Tool.
(12.5)

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY 2017

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.

Q1 Answer the following:-   (5x5=25)
   (a) What is type casting? Illustrate with example what is meant by Automatic type promotion.
   (b) What is delegation event model?
   (c) Discuss the uses of 'throw' and 'throws' keywords.
   (d) Explain the different uses of 'super' keyword.
   (e) Explain the lifecycle of an applet.

Q2 (a) Explain why the main function is declared as "public static void main (String args[])"?   (4)
   (b) List and explain any 8 Java buzzwords.   (4)
   (c) List and explain the OOP principles.   (4.5)

Q3 (a) Explain the concept of abstract classes in Java.   (6)
   (a) What is a Package? Discuss with suitable example the steps involved in creating and using packages.   (6.5)

Q4 (a) What are interfaces? What are their benefits? Give the general form of a class that implements interfaces.   (6)
   (b) Write a Java class called as SavingsAccount with members as AccountNo and Balance. Provide depositAmount() & withdrawAmount() functions. If user tries to withdraw more money than his balance, then throw a User Defined Exception.   (6.5)

Q5 (a) Explain the different ways of creating threads in java with syntax. (6)
   (b) How shared object can be protected from multiple access of threads?   (6.5)

Q6 (a) Bring out the differences between AWT and Swings using suitable example.   (6)
   (b) Discus various layout managers available in AWT.   (6.5)

Q7 (a) Write a program to illustrate BufferedInputStream and BufferedOutputStream.   (6)
   (b) Compare byte stream class and character stream class.   (6.5)

Q8 Write short notes on the following:-
   (a) JDBC architecture   (3)
   (b) Adapter classes   (3)
   (c) Applets and comparison with application program   (3)
   (d) Check box and choice list   (3.5)

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY 2017

Paper Code: BCA-208	Subject: *Software Engineering*
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 (a) What is the aim of software engineering?   **(10x2.5=25)**
(b) Provide three examples of software projects that would be amenable to the prototyping model.
(c) Describe 'feasibility study'.
(d) What is estimation?
(e) What is the difference between 'Deliverable and 'Milestone'?
(f) What is cyclomatic complexity?
(g) What is the difference between flow chart and structure chart?
(h) Define Data structure metrics.
(i) Differentiate between Alpha and Beta testing.
(j) What is the need for Re-engineering?

UNIT-I

Q2 (a) What is software life cycle? Discuss generic waterfall model.   **(6)**
(b) Compare iterative enhancement model and evolutionary enhancement model   **(6.5)**

Q3 (a) Draw two level DFD for library management system.   **(6)**
(b) Draw E-R diagram library management system.   **(6.5)**

UNIT-II

Q4 (a) Describe the role of management in software development with the help of examples.   **(4)**
(b) Difference between product, process and project.   **(4)**
(c) What are various factors of management dependency in software development? Discuss each factor in detail.   **(4.5)**

Q5 (a) Is it possible to estimate software size before coding? If so, how?   **(3)**
(b) What are size metrics? How is function point metric advantageous over LOC metric? Explain.   **(5)**
(c) What is risk? What are the risk management activities? Is it possible to prioritize the risk?   **(4.5)**

UNIT-III

Q6 (a) What are different types of coupling? Give one example of each type.**(4)**
(b) List out the components of 'software Design' document.   **(4)**
(c) Discuss different types of object oriented and function oriented design.   **(4.5)**

Q7 (a) How does software metric can improve the software process? Enumerate the effect of metric on software productivity.   **(4)**
(b) Which one is the most appropriate size estimation technique and why?   **(4)**
(c) Define and explain data structure metrics.   **(4.5)**

UNIT-IV

Q8 (a) Explain all the steps of cause effect graphing test case design technique with the help of diagram.   **(4.5)**
(b) With the help of an example for each, explain following testing-   **(8)**
    (i) Condition testing
    (ii) Loop testing

Q9 (a) What is debugging? Discuss various debugging techniques.   **(4.5)**
(b) Discuss various problems during maintenance. Describe some solutions to these problems.   **(4)**
(c) Explain boehm's maintenance model with the help of a diagram.   **(4)**

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END TERM EXAMINATION

FOURTH SEMESTER [BCA] MAY 2017

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 (a) Discuss different types of Network Models and topology. **(5)**
    (b) Distinguish between FDM, TDM and WDM. **(5)**
    (c) Describe three Internetworking Devices. **(5)**
    (d) Discuss design responsibilities of Data Link layer of OSI Model. **(5)**
    (e) What is two-node loop instability problem? Discuss its two solutions.
    (5)

UNIT-I

Q2 Describe different technical specifications of UTP, Coaxial cable and Fiber optic cable as transmission media. **(12.5)**

Q3 Discuss the following:- **(12.5)**
    (a) DTE-DCE Interface
    (b) Different types of Transmission Impairments.
    (c) Design responsibility of transport layer in OSI model.

UNIT-II

Q4 Discuss the following w.r.t error detection and correction- **(12.5)**
    (a) Redundancy
    (b) Hamming Code
    (c) Checksum

Q5 Discuss the following w.r.t ISDN- **(12.5)**
    (a) BRI
    (b) PRI
    (c) Different Reference points

UNIT-III

Q6 Explain the algorithm which forms the basis for Distance vector Routing? List its advantage and disadvantages. **(12.5)**

Q7 What is Classful addressing? Discuss the role of Netid, Hostid, Mask, Subnetting and Supernetting. **(12.5)**

UNIT-IV

Q8 Discuss responsibilities of Transport layer in OSI model. Explain the three-way handshake to establish the connection. **(12.5)**

Q9 Explain the functionalities for the following:- **(12.5)**
    (a) Application Layer
    (b) Session Layer
    (c) Presentation Layer

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