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END TERM EXAMINATION

THIRD SEMESTER [BCA] NOV.-DEC. 2018

Paper Code: BCA-201 **Subject: Mathematics-III**

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

Note: Attempt any five questions. Use of calculator is allowed.

Q1 The following data which is the number of tonnes shipped weekly across the Pacific by a shipping company.

398, 412, 560, 476, 544, 690, 587, 600, 613, 457, 504, 477, 530, 641, 359, 566, 452, 633, 474, 499, 580, 606, 344, 455, 505, 396, 347, 441, 390, 632, 400, 582

(a) Assume these data represent an entire population. Find the population mean and the population standard deviation. **(7)**

(b) Group the data into classes, and draw a histogram of the frequency distribution. **(8)**

Q2 (a) The following data are numbers of colour television sets manufactured per day at a given plant: 15, 16, 18, 19, 14, 12, 22, 23, 25, 20, 32, 17, 34, 25, 40, 41. Draw a frequency polygon and an ogive for these data. **(7)**

(b) Given the set of data 4, 8, 9, 8, 6, 5, 7, 5, 8, find each of the following sample statistics: (8)

(i) Mean (ii) Median (iii) Mode (iv) Midrange

Q3 The following table shows the average weights for given heights in a population of men. **(5x3)**

Heights (x cm)	160	165	170	175	180	185
Weights (y kg)	65.1	67.9	70.1	72.8	75.4	77.2

(a) The relationship between the variables is modelled by the regression equation $y=ax+b$. Write down the value of **a** and of **b**.

(b) Use this relationship to estimate the weight of a man whose height is 177 cm.

(c) Find the correlation coefficient.

Q4 (a) For the data X and Y given below: **(4x3)**

X: 1313 2020 2222 1818 1919 1111 1010 1515

Y: 1717 1919 2323 1616 2020 1010 1111 18

(i) Find Spearman's rank correlation coefficient.

(ii) Find the regression line

(iii) Find the coefficient of determination for the regression line fit.

(b) Correlation and Causality are one and the same. Critically comment. **(3)**

Q5 (a) Maximize $p = 2x - 3y + z$ **(10)**

subject to $x + y + z \le 10$

$4x - 3y + z \le 3$

$2x + y - z \le 10$

$x \ge 0, y \ge 0, z \ge 0$

Using the Simplex method.

P.T.O.

P1/P2

(b) Explain the concept of duality in context to linear programming problems. **(5)**

Q6 (a) Compare and contrast PERT and CPM. **(5)**
(b) Define and explain (1) pessimistic time (2) Optimistic time **(4)**
(c) The project activities, precedence relationships and durations are described in the table. The critical path of the project is **(6)**

Activity	Precedence	Duration (in days)
P	-	3
Q	-	4
R	P	5
S	Q	5
T	R,S	7
U	R,S	5
V	T	2
W	U	10

Q7 A trucking company has a contract to move 115 truckloads of sand per week between three sand-washing plants W,X and Y, and three destinations, A,B and C. Cost and volume information is given below. Compute the optimal transportation cost and the transportation plan.**(15)**

To From	Project A	Project B	Project C	Supply
Plant W	5	10	10	35
Plant X	20	30	20	40
Plant Y	5	8	12	40
Demand	45	50	20	

Q8 A head of department has four lecturers to assign to pure maths (1), mechanics (2), statistics (3) and Quantitative techniques (4). All of the teachers have taught the courses in the past and have been evaluated with a score from 0 to 100. The scores are shown in the table below. **(15)**

	Maths	Mechanics	Statistics	Quantitative Techniques
Mr. Sharma	80	55	45	45
Mr. Prakash	58	35	70	50
Mr. Thakran	70	50	80	65
Mr. Kumar	90	70	40	80

The head of department wishes to know the optimal assignment of teachers to courses that will maximize the overall total score. Give the optimal assignment of teachers and courses / papers as well as the optimal score.

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END TERM EXAMINATION

THIRD SEMESTER [BCA] NOV.-DEC. 2018

Paper Code: BCA-203 **Subject: Computer Architecture**

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 **(any five)** **(5x5=25)**

(a) What is register transfer language? Explain with the help of example.
(b) Design a 4-bit common bus of four registers.
(c) Differentiated between hardwired control and microprogrammed control units.
(d) Explain the different instruction formats.
(e) What is virtual memory? Explain.
(f) How interrupts are handled? Explain

UNIT-I

Q2 Draw a-4bit arithmetic circuit which perform all arithmetic operations and explain its functionalities. **(12.5)**

Q3 (a) What is instruction cycle? Draw a flowchart for instruction cycle of a basic computer. **(6.5)**
(b) Explain instruction pipeline. **(6)**

UNIT-II

Q4 (a) Explain the different types of addressing modes in basic computer. **(6.5)**
(b) Draw flow chart for multiplication operation. **(6)**

Q5 (a) What is the stack organization CPU? Explain the different stack operations with the help of example. **(6.5)**
(b) Differentiate between RISC and CISC. **(6)**

UNIT-III

Q6 What is asynchronous data transfer? Explain different methods of asynchronous data transfer. **(12.5)**

Q7 What is DMA? Draw and Explain the DMA controller in details. **(12.5)**

UNIT-IV

Q8 What is an associative memory? Explain the hardware organization of associative memory. **(12.5)**

Q9 (a) What is memory hierarchy in a computer system? Draw block diagrams and function tables of RAM and ROM chip. **(6.5)**
(b) Explain memory interleaving. **(6)**

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END TERM EXAMINATION

THIRD SEMESTER [BCA] NOV.-DEC. 2018

Paper Code: BCA-205 **Subject: Front End Design Tools VB.Net**

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 ten** of the following: **[2.5x10]**

(a) What are various components in Visual Basic.NET IDE?
(b) What is enumeration? Explain with example.
(c) Differentiate between Optional Argument and ParamArray argument in Procedure calling with example.
(d) Difference between list box and combo box.
(e) What are different data types in VB.Net.
(f) Explain Dynamic Array? Explain with suitable example.
(g) Explain the various features of .Net.
(h) Difference between ADO and ADO.Net
(i) Explain assemblies in VB.NET.
(j) What is difference between a picture box and image box control.
(i) Explain namespaces.
(k) Explain garbage collector and its use.

Unit – I

Q2 (a) What is Array List? Explain five methods of Array List Class with example. **[6.5]**
(b) What is Client Server model? Explain Two and Three Tier Model **[6]**

OR

Q3 (a) Explain Dot Net Architecture and its various components (such as CLS, CTS, CLR foundation class libraries etc.). **[7.5]**
(b) Explain exception handling techniques in VB.Net **[5]**

Unit – II

Q4 (a) Explain any three types of loop available in Visual Basic.NET with example. **[5]**
(b) What is a procedure? Explain different types of procedures in Visual Basic.NET. Write a procedure to find area, circumference of a circle **[7.5]**

OR

Q5 (a) Write a program to find factorial of a number accepted by user and another program to find whether the given number is a prime number or not. **[8]**
(b) What is code access security? **[4.5]**

Unit – III

Q6 Define following terms: **[12.5]**

(a) Message Box (b) Check Box (c) Inheritance
(d) List view (e) Text Box (f) Overloading

OR

Q7 (a) Explain the use and working of OpenDialog, Save Dialog, Color Dialog and Font Dialog Controls along with their example. **[7.5]**
(b) Explain the concept of Constructor and Destructor with suitable example **[5]**

Unit – IV

Q8 (a) Explain ADO.Net architecture and their components in details. **[8]**
(b) Write short note on : Data Set, Data Reader and Connection Objects. **[4.5]**

OR

Q9 (a) What is Crystal Report? Write the steps to create a Crystal report. **[4.5]**
(b) Write a Program to the ADO.Net code to insert the record into the employee table containing the columns such as emp_id, emp_name and salary. **[8]**

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END TERM EXAMINATION

THIRD SEMESTER [BCA] NOV.-DEC. 2018

Paper Code: BCA-207 *Subject: Principles of Accounting*

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 three** parts: **(3x5=15)**

(a) Explain the relationship of accounting with other allied disciplines.
(b) Explain the reasons for changing depreciation as an expense.
(c) Why do we create for provision for bad debts in books of amount? State its relevance.
(d) Distinguish between LIFO & FIFO. Which method is better under the state of rising prices and why?
(e) What are Accounting Standards? Why are these issued?

UNIT-I

Q2 What is accounting? What is the importance of accounting records and information for its stakeholders? **(15)**

OR

Q3 Explain the following with the help of examples:-

(a) Business Entity Concept
(b) Convention of Prudence
(c) Matching concept
(d) Dual Entity concept
(e) Accrual concept **(3x5=15)**

UNIT-II

Q4 Reward the following adjustments in the books of accounts-

(a) Loss of goods by fire Rs. 8,000
(b) Pilferage loss Rs. 4,000.
(c) Bad debts Rs. 5,000
(d) Outstanding expenses Rs. 3,000
(e) Remuneration of manager Rs. 20,000 not reward in books.
(f) Sales Rs. 20,000 is on approval basis. **(2.5x6=15)**

OR

Q5 Distinguish between the following:-

(a) Cash Book and Petty cash book
(b) Journal and journal proper
(c) Straight line method and written down value method of changing depreciation.
(d) Trading and profit and loss account
(e) Provision and Reserve
(f) Capital expenditure and revenue expenditure. **(2.5x6=15)**

UNIT-III

Q6 From the following data prepare the Trading, Profit and Loss Account and Balance Sheet for the year ending on 31st Dec. 2017

Trial Balance of M/s Kumar Bros. for the year ending on 31st Dec. 2017

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Particulars	Debit Amount (Rs.)	Credit Amount (Rs.)
Tax payable		90,000
Net sales		9,30,000
Net purchases	3,20,000	
Stock	30,000	
Salaries and wages	1,80,000	
Rent and Rates	1,40,000	
Water and Electricity	21,000	
Trade creditors		1,19,600
Trade Debtors	3,21,000	
Insurance	51,000	
Cash in hand	20,000	
Cash at Bank	1,34,000	
Plant and machinery	4,20,000	
Furniture and Fittings	97,600	
Capital		7,00,000
Drawings	15,000	
Fixed Deposit with Bank	3,00,000	
Bank Loan		1,70,000
Provision for dep. Plant and machinery		30,000
Provision for dep.- furniture and fittings		10,000
Total	20,49,600	20,49,600

Additional Information:

(a) Closing stock amounted to Rs. 70,000.

(b) Provision for depreciation is to be made for the current year:
- Plant and machinery @ 10% on Book value.
- Furniture and fittings @ 8% on book value.

(c) Outstanding expenses: Wages Rs. 8,000
Water and Electricity Rs. 3,000

(d) Prepaid expenses: Rent and Rates: Rs. 14,000
Insurance Rs. 25,000

(e) Accrued Income: Accrued interest upto and including 31st Dec. 2017 is Rs. 13,000.

(f) Provide for doubtful debts: 4% of total debtors. **(15)**

OR

Q7 What is inventory? What are its different forms? What is the rationale for valuation of inventory? Which method do you think is better for evaluation amongst numerous methods of inventory valuation? **(15)**

UNIT-IV

Q8 On 1st July, 2013 a company purchased a machine for Rs. 3,90,000 and spent Rs. 10,000 on its installation. It decided to provide depreciation @ 15% per annum, using written down value method. On 30th November, 2016 the machine was dismantled at a cost of Rs. 5,000 and then sold for Rs. 1,00,000. On Ist December, 2016 the company acquired and put into operation a new machine at a total cost of Rs. 7,60,000. Depreciation was provided on the same basis as had been used in case of earlier machine. The company closes its books of account every year on 31st March.
Prepare Machinery amount and depreciation account for the four accounting years ended 31st March, 2017. **(15)**

OR

Q9 (a) What are the limitations of final accounts of a firm along with their importance. Explain clearly.

(b) What is perpetual inventory system? How is it different from periodic inventory system? Which one you consider is better and why? **(15)**

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END TERM EXAMINATION

THIRD SEMESTER [BCA] NOVEMBER-DECEMBER 2018

Paper Code: BCA-209 Subject: Object Oriented Programming Using C++

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

Note: Attempt any five questions including Q.No1 which is compulsory. Select one question from each unit.

Q1 Answer the following:- **(10x2.5=25)**

(a) Explain data hiding and encapsulation with an example.
(b) Compare the features of C and C++.
(c) Explain the features of macros and inline functions.
(d) Give the syntax of defining a class.
(e) Explain various types of inheritance.
(f) Compare the features of early binding and late binding.
(g) Explain virtual base class with an illustration.
(h) Explain the features of generic programming.
(i) Explain namespace. Give an example.
(j) Explain various types of exceptions.

UNIT-I

Q2 (a) Compare the feature of structured programming language and object oriented programming language. **(4)**

(b) Explain the features of inheritance and exception handling used in object oriented programming languages. **(4.5)**

(c) Explain the features of C++ environment: **(4)**

i. C++ Compilers
ii. Testing a C++ program

OR

Q3 (a) Write a C++ program to illustrate the use of new () and delete () operators. **(4.5)**

(b) Explain various types of polymorphism. **(4)**

(c) Mention any four standard libraries used in C++. **(4)**

UNIT-II

Q4 (a) Write a C++ program to illustrate the default constructor, parametric constructor and copy constructor. **(4.5)**

(b) Explain the role of friend functions in C++. **(3.5)**

(c) Explain the following:- **(4.5)**

i. Abstract class and meta class
ii. Data members and member functions
iii. This pointer

OR

Q5 (a) Explain function overloading with an example. **(4)**

(b) Explain the role of constructors and destructors in C++. **(3.5)**

(c) Write a C++ program to illustrate the following:- **(5)**

i. Call by value
ii. Call by reference

UNIT-III

Q6 (a) Write a C++ program to illustrate the following: (i) overloading of member functions and (ii) overriding of member functions. **(6)**

(b) Write a C++ program to illustrate virtual functions. **(4.5)**

(c) Give an example to illustrate aggregation and composition. **(4)**

OR

P.T.O.

P 1/2

Q7 (a) Explain the access mechanism of public, private and protected related to inheritance. **(4.5)**

(b) Explain how to resolve ambiguity in multiple inheritances with an example. **(3)**

(c) Write a C++ program to illustrate the following:- **(5)**

i. Overload binary operator

ii. Overload unary operator

UNIT-IV

Q8 (a) Write a C++ program to illustrate the following stream functions: is_open (), get() and put(). **(5)**

(b) Write a C++ program to illustrate overloading of template functions. **(4)**

(c) Explain the features of persistent objects. Give an example. **(3.5)**

OR

Q9 (a) Give the syntax of write () and read () functions using in file streams. **(4)**

(b) Explain the template functions with an example. **(4)**

(c) Write a C++ program to illustrate try, throw and catch statements. **(4.5)**

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