

Department of Computer Science & Engineering

Begum Rokeya University, Rangpur

1st Year 2nd Semester Final Examination – 2011 (Session: 2010-11)

Course Code: CSE 1201 Course Title: Structured Programming Language

Full Marks: 50

Time: 03:00 hrs

(Answer any Five. Figures in the right margin indicate individual marks.)

1. (a) When and why a programming language is treated as a structured language ? Write five suitable examples of it. 4
 (b) Is C is a programmer language or not? Expatriate your side. 2
 (c) Explain that function which must be present every C program. Is that's name keyword or not? 2
 (d) What does int main(void) mean. 2

2. (a) Classify and describe every types of storage class with relevant examples. 6
 (b) What is type conversion in C? What would be happened for the following cases:
 i) If target type is **char** and expression type is **int**.
 ii) If target type is **int** and expression type is **long int**.
 iii) If target type is **int** and expression type is **float**.
 iv) If target type is **short int** and expression type is **int**. 4

3. (a) What will the following code fragment print? 3

```
int j=5;
printf("%d%d%d%d%d",j++,j--,++j,--j,j);
```

 (b) Convert the following code by using ternary operator: 2

```
int a=17;
if(a>=16)
    b=100;
else
    b=200;
```


 (c) Explain those two basic data types which are take large typical size in bits in memory. 3
 (d) What is cast? Write the general form of cast. 2

4. (a) Describe with pertinent example C supported two types of conditional statements with differences of those. 4
 (b) What is loop ? Decorate the following code by using While loop: 3

```
#include<stdio.h>
void main (void)
{
    int x;
    for(x=1;x<=100;x++)
        printf("%d",x);
}
```


 (c) With an example describe the differences between While and Do-While. 2
 (d) What do you mean by nested ifs? 1

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5. (a) What is pointer? What do you mean by "C allows the use of the assignment operator to copy pointers of the same type." 2
- (b) Describe the followings: 4
 i. Arrays to pointers. ii. Pointers to pointers.
- (c) What will the following code fragment print? 4
- ```
int a = 10, *b, *c;
b = &a; c = b; *c = (*b)*a*(*c);
 printf("%d", *b);
```
6. (a) What are the differences between 'structure and array' and 'structure and union'? 2
- (b) Describe the array of structure with suitable example. 2
- (c) Declare a structure within structure and how referencing the member of structure within structure. 3
- (d) Calculate the size of the variable *dummy* declared below. 3
- ```
struct temp{
    char s[30];
    int x;
    float y;
    double d[100];
} dummy[100];
```
7. (a) What is formal parameter and actual parameter. 2
- (b) What is the difference between global variable and function parameter. 2
- (c) Write a program with two user defined functions where you should call one by value and another by reference. 4
- (d) What are the differences between write and append mode? 2

Course Title: Semiconductor Devices & Circuits

Course Code: CSE 1203

Time: 3.0 Hours

Full Marks: 50

[N.B. Answer any Five (5) Questions, Number of each question is indicated to the right]

1. (a) Write the difference between p-type and n-type semiconductor materials. 3
- (b) Sketch the atomic structure of silicon and insert an impurity of arsenic and explain the merit of such doping. 1+2=3
- (c) Write down the merits of extrinsic semiconductor over intrinsic semiconductor. 4

2. (a) Explain what happen when pn junction are formed? 2
- (b) Explain with figure the mechanism of current flow in a forward biased pn junction. 5
- (c) Define breakdown voltage, knee voltage and zener voltage. 3

3. (a) With a neat sketch, explain the working of a full wave bridge rectifier. 1+5=6
- (b) Drive an expression for the efficiency of a full wave rectifier. 4

4. (a) What is zener diode? Give its characteristics. 1+2=3
- (b) Explain how zener diode maintains constant voltage across load? 4
- (c) An ac voltage of peak value 15 V is connected in series with a silicon diode and load resistance of 470Ω . If the forward resistance of the diode is 22Ω . calculate (i) peak current through diode, (ii) peak output voltage. 3

5. (a) What is transistor? Write the name of the three terminals of a transistor and why they are so called? 3
- (b) Explain Why is collector current slightly less than emitter current. 4
- (c) Establish the relation between α and β . 3

6. (a) What is transistor biasing? Write the different biasing method of transistor. 1+2=3
- (b) Explain the voltage divider bias method of a transistor with circuit diagram. 6
- (c) Define the stability factor. 1

7. (a) Write the difference between FET and BJT. 2
- (b) What are the different types of FET? 2
- (c) Explain the construction and working of a JFET. 3+3=6

Department of Computer Science and Engineering

Begum Rokeya University, Rangpur

Semester Final Examination-2011

Session : 2010-11

Course: **Financial Accounting**, Course Code: CSE-1205

Total Marks: 50. Time: 3:00 Hours

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Answer any five from the following questions.

$10 \times 5 = 50$

1. i) What is counting? Describe the three basic activities of accounting with examples. 4
 ii) Mark Miller started his own delivery service, Miller Deliveries, on June 1, 2010. The following transactions occurred during the month of June. 6

June 1 Mark invested \$10,000 cash in the business.
 2 Purchased a used van for deliveries for \$12,000. Mark paid \$2,000 cash and signed a note payable for the remaining balance.
 3 Paid \$500 for office rent for the month.
 5 Performed \$4,400 of services on account.
 9 Withdrew \$200 cash for personal use.
 12 Purchased supplies for \$150 on account.
 15 Received a cash payment of \$1,250 for services provided on June 5.
 17 Purchased gasoline for \$100 on account.
 20 Received a cash payment of \$1,500 for services provided.
 23 Made a cash payment of \$500 on the note payable.
 26 Paid \$250 for utilities.
 29 Paid for the gasoline purchased on account on June 17.
 30 Paid \$1,000 for employee salaries.

Instructions

- (a) Show the effects of the previous transactions on the accounting equation using the following format.

Assets	Liabilities			Owner's Equity	
Accounts Date Cash + Receivable + Supplies +	Delivery Van	Notes = Payable +	Accounts Payable +	M. Miller. Capital -	M. Miller. Drawings + Revenues - Expenses

- (b) Prepare an income statement for the month of June.

2. Following are the transaction occurred for Mendis Traders for April, 2010. Record the transaction through the special journals. 10

April 1 Mr. Mendis invested Tk. 70,000 in the business.

- " 3 Purchased good on credit from Mr. Behrain Tk. 15,000
- " 4 Purchased furniture on credit from Navana Furniture Tk. 20,000.
- " 5 Sold goods for cash Tk. 22,000
- " 6 Returned goods to Mr. Behrain Tk. 5,000
- " 7 Paid salary of Tk. 7,000
- " 9 Took loan from Larib Bank Tk. 25,000.
- " 11 Purchased goods on credit from -

Mr. Jordan - 12,000

Mr. Kevin - 14,000

Ms. Ladiva - 17,000

" 13 Sold goods on credit to -

Mr. Messi - 27,000

Mr. Kaka - 25,000

Mr. Ronaldo - 30,000

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" 18 Mr. Messi returned goods of Tk. 7,000

" 23 Paid outstanding amount to Mr. Behrain with 2% discount.

" 25 Received cash 12,000 from Mr. Kaka.

" 27 Paid insurance premium of Tk. 4,000

" 28 Received outstanding amount from Mr. Messi with 3% discount.

" 30 Paid commission of Tk. 3000

3. Disney Amusement Park has a fiscal year ending on September 30. Selected data from the September 30 worksheet are presented below.

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DISNEY AMUSEMENT PARK
Worksheet
For the Year Ended September 30, 2010

	Trial Balance		Adjusted Trial Balance	
	Dr.	Cr.	Dr.	Cr.
Cash	41,400		41,400	
Supplies	18,600		1,200	
Prepaid Insurance	31,900		8,900	
Land	80,000		80,000	
Equipment	120,000		120,000	
Accumulated Depreciation		36,200		42,200
Accounts Payable		14,600		14,600
Unearned Admissions Revenue		3,700		2,000
Mortgage Note Payable		50,000		50,000
L. Disney, Capital		109,700		109,700
L. Disney, Drawing	14,000		14,000	
Admissions Revenue		277,500		279,200
Salaries Expense	105,000		105,000	
Repair Expense	30,500		30,500	
Advertising Expense	9,400		9,400	
Utilities Expense	16,900		16,900	
Property Taxes Expense	18,000		21,000	
Interest Expense	6,000		10,000	
Totals	491,700	491,700		
Insurance Expense			23,000	
Supplies Expense			17,400	
Interest Payable				4,000
Depreciation Expense			6,000	
Property Taxes Payable				3,000
Totals			504,700	504,700

Instructions:

- Show the adjusting entries that were made
- Complete the worksheet

4. Consider the trial balance of Dell & Co.

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Mr. Dell & Co.
Trial Balance

Sl. No.	Account Name	Dr.	Cr.
1	Accounts payables		34000
2	Accounts receivables	59000	
3	Cash in hand	99500	
4	Cash at bank	8200	
5	Equipment at cost	22000	
6	Furniture at cost	25000	
7	Stock	1500	
8	Capital		103500
9	Anwar Furniture		20000
10	Purchase	38000	
11	Sales		89000
12	Purchase return		3000
13	Sales return	5000	
14	Discount allowed	500	
15	Discount received		200
16	Salaries	7000	
17	Wages	8000	
18	Dividend income		9000
19	Stationary	1500	
20	Loan from Aman		22000
21	Insurance	3000	
22	Sublet rent		5000
23	Drawings	7500	
	Total	285700	285700

Other Adjustments :

1. Closing stock Tk. 14000
2. Salaries accrued Tk. 2000
3. Insurance prepaid Tk. 2000
4. Dividend income receivable Tk. 3000
5. Sublet rent received in advance Tk. 2000
6. Furniture is to be depreciated @ 10% on cost
7. Equipment is be depreciated @ 5% on cost

Requirement : Prepare income statement and balance sheet based on the above information.

5. A company is ready to begin its third quarter in which peak sales occurred. The company has required a Tk. 40000, 90 days loan from its bank to help cash requirements during the quarter. Since the company has experience difficulty in paying off its loan in the past the loan officer at the bank has asked the company to prepare a cash budget for the quarter. In response to this request, the following data have been assembled. 10

1. On July 1, the beginning of the 3rd quarter the company will have a cash balance of Tk. 44500

2. Actual sales for the last two months and budgeted sales for the third quarter as follows: (in taka)

May	250000	August	600000
June	300000	September	320000
July	400000		

Past experience shows that 25% of a month's sales are collected in the month of the sales, 70% in the month following the sales, and 3% in the second month following the sales. The reminder is uncollectible.

3. Budgeted merchandise purchases and budgeted expenses for the third quarter are given below:

	July	August	September
Merchandise Purchase	240000	350000	175000
Salaries	45000	50000	40000
Advertising	130000	145000	80000
Rent Payment	9000	9000	9000
Depreciation	10000	10000	10000

Merchandise purchases are paid in full during the month following the purchase. Accounts payable for the merchandise on June 30, which will be paid during July total Tk. 180000

4. Equipment costing Tk. 10000 will be purchased for cash during July.
 5. In preparing the cash budget assume that Tk. 40000 loan will be made in July and repaid in September. Interest on the loan total Tk. 1200

Requirements:

1. Prepare a cash Budget by month and in total for the third quarter.
 2. If the company needs a minimum cash balance of Tk. 10000 to start each month can the loan be repaid as planned? Explain
 6. Consider the following information for Vasquez Ltd. for the month of January, 2010

Date	Description	Quantity	Unit Cost or Selling Price
December 31	Ending inventory	150	\$17
January 2	Purchase	100	21
January 6	Sale	150	40
January 9	Sale return	10	40
January 9	Purchase	75	24
January 10	Purchase return	15	24
January 10	Sale	50	45
January 23	Purchase	100	28
January 30	Sale	110	50

Instructions

- (a)** For each of the following cost flow assumptions, calculate (i) cost of goods sold, (ii) ending inventory, and (iii) gross profit.

(i) LIFO. **(ii)** FIFO. **(iii)** Moving-average-cost.

(b) Compare results for the three cost flow assumptions.

7. (a) Write about the depreciation, depletion and amortization.
(b) Consider the following information for Vasquez Ltd. for the month of January, 2010

DuPage Company purchases a factory machine at a cost \$18,000 on January 1, 2008. DuPage expects the machine to have a salvage value of \$2,000 at the end of its 4-year useful life. During its useful life, the machine is expected to be used 160000 hours. Actual annual horly use was: Year 2008: 40,000; Year 2009: 60,000, Year 2010: 35,000, and 2011: 25,000.

Instructions:

Prepare depreciation schedules for the following methods:

- (a) straight-line
 - (b) units-of-activity and
 - (c) declining-balance method

[N. B. value of each question is indicated to the right]

1. (a) Define function. Is $y = \pm\sqrt{25-x^2}$ defines y as a function of x? If not why? 4(b) Find the domain and range of $f(x) = \frac{x+2}{x-2}$. 3(c) Find the inverse of $f(x) = \log_b x$ 32. (a) Define Continuity. Find the value of x at which $f(x) = \begin{cases} 3x^2 + 5, & x \neq 1 \\ 6, & x=1 \end{cases}$ 6

Is not continuous? Determine the type of discontinuity.

(b) If $f(x) = \begin{cases} 1/(x+2), & x < -2 \\ x^2 - 5, & -2 < x \leq 3 \\ \sqrt{x+13}, & x > 3 \end{cases}$, find $\lim_{x \rightarrow 3} f(x)$ 43. (a) i) Find the differential coefficient of $\log_{\cos x}(\sin x)$ with respect to x. 2.5+2.5ii) Differentiate $\cos x - \log_a x^2$ with respect to $\cot x^3$ 3(b) Show that $f(x) = |x|$ is not differentiable at $x=0$ 2(c) Find the differential dy of $y = x^3 \sqrt{2-x^2}$ 24. (a) Find the slope of the curve $y^2 - x + 1 = 0$ at the points (2,-1) and (2,1). Use this slopes to find the equation tangents at these points. 5(b) Find the nth derivative of $\tan^{-1} \frac{\sqrt{1+x^2}-1}{x}$ 5

5. (a) State and prove Mean Value Theorem. 5

(b) If $x = \sin\left(\frac{1}{m} \ln y\right)$, then show that $(1-x^2)y_{n+2} - (2n+1)xy_{n+1} - (n^2+m^2)y_n = 0$ 56. (a) (i) Find $\int (\ln x)^2 dx$ 2.5+2.5(ii) Find $\int \sqrt{4-3x-2x^2} dx$ 5

(b) Define Integral calculus. Discuss the rectangular method to find the area of a region.

7. (a) If f is continuous on $[a,b]$ and F is any antiderivative of f on $[a,b]$, then provethat $\int_a^b f(x)dx = F(b) - F(a)$. 6(b) Evaluate the value of $\int_0^1 \frac{\log(1+x)}{1+x^2} dx$. 4

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Begum Rokeya University, Rangpur
Department of Computer Science and Engineering
Course Code: CSE1207

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Course name: Basic Statistics and Probability
B.Sc. Honors 1st year 2nd Semester, Final Examination-2011

Marks: 50

Time: 3:00 Hours

[All questions are of equal value. Answer any five questions. Digit of the last right side margin indicates marks.]

1. Define Statistics? What is the difference between primary and secondary data?
What is frequency distribution? Draw histogram, frequency polygon and ogive
from the following data:

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	5	10	12	20	10	8	5

1+2
1+3

Also find the median and mode graphically from the above data.

3

2. What do you mean by central tendency? "Is arithmetic mean a good measure?"
justify your answer. Show that $AM \geq GM \geq HM$ for two observations. Also show
that sum of the deviation about mean is null. Find 5th decile and 25th percentile
from the aforesaid data.

1+2
2+2
3

3. What is dispersion? What are the measures of dispersion? What are the properties
of an ideal measure of dispersion? Show that mean deviation about mean can not
exceed standard deviation. Calculate the coefficient of variation from the above
data. Why coefficient of variation is preferred instead of standard deviation?

1+1
2+2
2+2

4. Define skewness and kurtosis of a frequency distribution. Show that for a
distribution $\beta_2 \geq \beta_1 + 1$, under usual notation. The mean and variance of a
distribution are 5 and 12 respectively. If $\beta_1 = 0.25$ and $\beta_2 = 3.24$, find first four
raw moments.

2+4
+4

5. What do you mean by probability? What are the axioms of probability? State and
prove Boole's inequality. State the Bayes Theorem. Two unbiased dice are
thrown. Find the probability that first die shows 5 or sum of the upper faces is
more than or equal to 8.

1+1
4+1
3

- X
6. Define Binomial and Poisson distribution. Also find their mean and variances. If 2 percent fuses produced by a company are usually found defective, what is the probability that in a box of 200 fuses there will be (i) no defective fuse, (ii) 1 defective fuse (iii) 2 defective fuses? 2+5
 7. What are the differences between correlation and regression? Derive the formula for the rank correlation coefficient. Let X be the measurement of heights and Y be the measurement of weights. The observations are shown as follows: 3

X	60	60	60	62	62	62	64	64	64	66	66	66	68	68	68
Y	115	120	130	130	140	120	135	130	145	170	140	155	150	160	175

Fit a least square line to the data with X as the independent variable. If the height of a student were 67 inches, what would be his predicted weight?