Department of Computer Science and Engineering
Begum Rokeya University, Rangpur.
1st Year 1st Semester Final Examination' 2015. (Session: 2014-15)

Course Title: Computer Fundamentals **Time: 3.00 Hours**
Course Code: CSE 1101 **Full Marks: 50**

Answer Any Five from the Given Questions

(Note: Numbers in the right margin indicate marks for each question. Answer the questions sequentially.)

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1. **(a)** What is the role of transistors in the evolution of computer? Classify Computer based on purpose, signal and size. **1+3=4**
   (b) Describe model of a Computer and its parts with a diagram. **3**
   (c) Mention the significant changes those had been introduced in 3rd generation computer from 2nd generation computer. **3**
2. **(a)** Explain different types of number system representation in computer. **3**
   (b) Convert the following numbers as mentioned below: **3**
   (i)$3AC_{16}$ to decimal (ii) 46.2_{10} to binary iii) 10110010110.100110_2 to hexadecimal
   (c) Using 5 bits for storing number, calculate the values of (i) 9-4 (ii) -9+4 by 2's complement addition. **4**
3. **(a)** What are the technological differences among LCD, LED and Plasma display devices? **3**
   (b) Explain the printing mechanism of laser printer with figure.. **3**
   (c) What are the four factors you should consider while evaluating printers? **4**
4. **(a)** Define adapters, ports and expansion slots for your computer with figure. **3**
   (b) How do the Cache and BUS affects the processing speed of a computer? Hence, classify Cache and BUS. **4**
   (c) Describe the function of a microprocessor with the help of a flowchart. **3**
5. **(a)** With block diagram describe the functions of Arithmetic Logic Unit (ALU). **3**
   (b) What do you mean by machine cycle? Describe the steps performed during the instruction cycle. **1+2=3**
   (c) What are registers? List out the commonly found registers in the CPU and explain their functions. **1+3=4**
6. **(a)** What are the process of compiling and running a C program? **4**
   (b) What is the necessity of preprocessor directives? Describe with example. **2**
   (c) What is the difference between *int main()* and *void main()*? **1**
   (d) Find errors if any, in the following program: **3**

```
##include{stdio.h}
 int main[]
  (
   Print('hi %d',x);
  )
```

7. **(a)** Describe the four basic data types. How could we extend the range of values they represent? **4**
   (b) Define variable, identifier and quantifier. **3**
   (c) Identify syntax errors in the following program. After corrections what output would you expect when you execute it? **3**

```
#define PI 3.4159
main( )
   {
    int R,C; float perimeter, area;
    C=PI;R=5;
    Perimeter = 2.0*C*R;
    Area= C*R*R;
    printf("%f,%d",&perimeter, &area);
   }
```

Department of Computer Science & Engineering
Begum Rokeya University, Rangpur

Semester Final Examination-2015 1st year 1st Semester Session: 2014-2015
Course Title: Electrical Circuit Analysis Course Code: EEE 1121
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) What do you mean by electrical circuit? What are the basic elements of electrical circuits? 2

(b) Give the differences between resistor, capacitor and inductor. 3

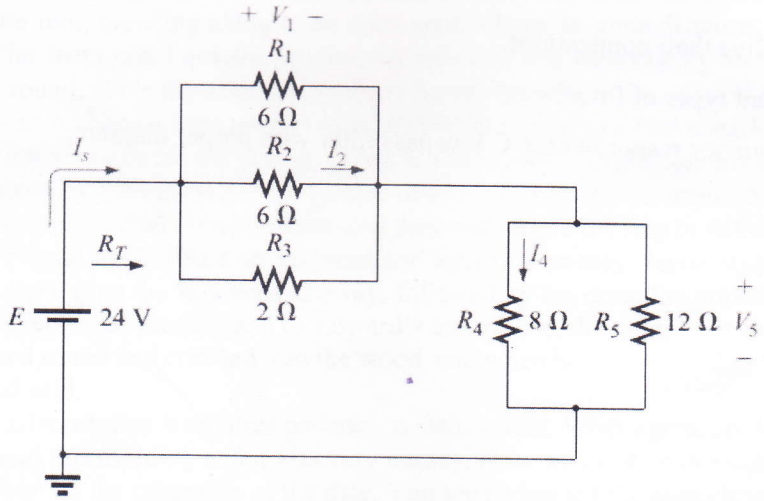
(c) Define series and parallel circuit. 2

(d) Calculate the current flowing through R_1 ,R_2 and R_3, those are connected in parallel with a source E. 3

2. (a) Explain the characteristics of open circuit and short circuit. 2

(b) Explain voltage divider and current divider rule with proper circuit diagram. 5

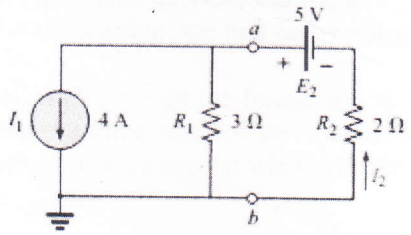
(c) Calculate I_S, I_2, and I_4 in the given circuit. 3



3. (a) What do you mean by current source and voltage source? Explain how one can interchange them? 2+3=5

(b) Explain why current sources of different current ratings are not connected in series. 2

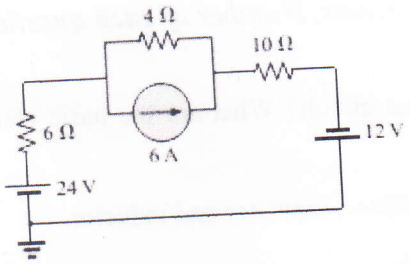
(c) Calculate the value of I_2 in the given circuit. 3



4. (a) What do you mean by electrical circuit analysis? What are the different methods of electrical circuit analysis? 1+1=2

(b) What is *supermesh* current? Describe its analyzing procedure. 4

(c) Using mesh analysis method, calculate the current flowing through each elements of the given circuit. 4



5. (a) What do you mean by ac? What are the different forms of ac? 1+1=2

(b) What happen when ac passing through resistor, capacitor and inductor. 3

(c) Define reactance and impedance. What do you mean by phasor diagram? Deduce the r.m.s value of ac voltage and current. 1+1+3=5

6. (a) Sate and explain maximum power transfer theorem. 5

(b) State thevenin's theorem. How to thevenize a given circuit? Explain. 5

7. (a) What is filter? Give their applications. 1+1=2

(b) What are different types of filter? 3

(c) Explain the frequency response of R-C low pass filter with proper diagram. 4

Begum Rokeya University, Rangpur
Department of Computer Science and Engineering
B. Sc. (Engg.) 1st Year 1st Semester Final Examination -2015
Course: ENG 1123(Communicative English)

Time: 3 hours | Full Marks: 50

N.B.

a) The figures in the margin indicate full marks.

b) All parts of each question must be answered consecutively.

Group - A

1. Read the following text carefully and then answer the questions from 1 to 3: 5X1 =5

'Now, Edward, we are going after a fine stag, if we can find him-which I doubt not-but the difficulty is to get within shot of him. Recollect that you must always be hid, for his sight is very quick; never be heard, for his ear is sharp; and never come down to him with the wind, his scent is very fine. Then you must hunt according to the hour of the day. At this time he is feeding; two hours hence he will be lying down in the high fern. The dog is of no use unless the stag is badly wounded when the dog will take him. Smoker knows his duty well, and will hide himself as close as we do. We are now going into the thick wood ahead of us, as there are many little spots of cleared ground in it where we may find the deer, but we must keep more to the left, for the wind is to the eastward and we must walk up against it. And now that we are coming into the wood, recollect not a word must be said, and you must walk as quietly as possible, keeping behind me. Smoker, to heel!'

The proceeded through the wood for more than a mile, when Jacob made a sign to Edward and dropped down in the fern, crawling along to an open spot, where, at some distance, were a stag and three deer grazing. The deer grazed quietly, but the stag was ever and anon raising his head and snuffing the air as he looked round, evidently acting as sentinel for the females.

The stag was perhaps a long quarter of a mile from where they had crouched down in the fern. Jacob remained immoveable till the animal began to feed again, and then he advanced, crawling through the fern, followed by Edward and the dog who dragger himself on his stomach after Edward. This tedious approach was continued for some time, and they had neared the stag to within half the original distance, when the animal again lifted up his head and appeared uneasy. Jacob stopped and remained without motion. After a time the stag walked away, followed by the does, the opposite side of the clear spot on which they had been feeding and to Edward's annoyance, the animal was now half a mile from them. Jacob turned round and crawled into the wood, and when he knew that they were concealed, he rose on his feet and said:

'You see, Edward, that it requires patience to stalk a deer. What a princely fellow! But he has probably been alarmed this morning and it was very uneasy. Now we must go through the woods till we come to the lee of him on the other side of the dale. You see he has led the does close to the thicket and we shall have a better chance when we get there, if we are quiet and cautious.'

'What startled him, do you think"' said Edward.

'I think, when you were crawling through the fern after me, you broke a piece of rotten stick that was under you, did you not?'

'Yes, but that made but little noise.'

'Quite enough to startle a red deer, Edward, as you will find out before you have been long a forester. These checks will happen, and have happened to me a hundred times, and all the work is to be done over again. Now then to make a circuit we had better not say a word. If we get now to the other side, we are sure of him.

They proceeded at a quick walk through the forest, and in half an hour had gained the side where the deer were feeding. When about three hundred yards from the game Jacob again sank on his hands and knees, crawling from bush to bush, stopping whenever the stag raised his head, and advancing again when it resumed feeding.

Answer the following questions by using only one sentences:

a) Why is it difficult to get near a wild stag"

b) Why did Jacob choose this time of day to hunt the stag?

d) What made the stag move away with the three does (female deer)?
e) Suggest a suitable short title for the text.

2. Give the meaning of these words taken from the text and then use them in other sentences to bring out their meaning clearly. (any fiv) 5X1 =5
a) scent; b) ahead; c) proceeded; d) crawling; e) grazing; f) sentinel; g) uneasy; h) concealed; i) alarmed; j) resumed.

3. Give the meaning of these expressions taken from the text and then make sentences by using them. (any five) 5X1 =5
a) to get within shot of him; b) ever and anon; c) without motion; d) rose on his feet; e) to stalk a deer; f) from the game; g) on his hands and knees.

Group -B

4. Change the following words according to the direction and then make sentences by using the changed words. (any five)
a) wit (adjective); b) blame (adjective); c) splendid (noun); d) move (noun); e) curious (noun); f) caution (adjective); g) amuse (adjective).

5. Make these words negative by adding a prefix. Use these negative words in sentences: 10X1 =10

Comfortable, fortune, believe, correct, tidy, natural, interesting, continue, politely, appear.

6. Describe these objects by using one sentence so as to make them clear to anyone who has not seen them (any five). 5X1 =5
a) A barrel; b) An ear-ring; c) Handcuffs; d) Thunder; e) An earthquake; f) A mouse; g) The horizon

7. How far is it true, do you think, that schooldays are the happiest ones of our life? 5

Or Write a letter to a firm that has advertised some articles that you wish to buy by post. Give the necessary order with careful instructions as to quality of the articles. Mention the method of payment you propose.

8. Write a letter to a friend, telling her/him about a very enjoyable book you have read recently. 5

Or Write a composition of about 150 words, describing a busy street in your town.

Department of Computer Science &Engineering

B.Sc. (Hons.) 1st Year 1st Semester Final Examinaton-2015

Course Code: MAT 1103 (1104) Course Title: Linear Algebra & Geometry

Time: 03 Hours Session: 2014-2015 Marks: 50

[N.B. Answer any five of the following questions
Marks of each question is indicated to the right]

1.a)	Find the condition that the general equation of 2nd degree $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ may represent a pair of straight lines.	5
b)	Show that the product of perpendiculars from the point (x_1, y_1) on the lines $ax^2 + 2hxy + by^2 = 0$ is equal to $\frac{a_1x^2+2h_1xy+by_1^2}{\sqrt{(a-b)^2+4h^2}}$	5
2.a)	Find the equation of the bisectors of the angles between the straight lines represented by $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$	5
b)	Transfer the equation $14x^2 - 4xy + 11y^2 - 36x + 48y + 41 = 0$ to rectangular axes through the point (1,-2) inclined at an angle $\tan^{-1}(-1/2)$ to the original axes.	5
3.a)	Find the transformation from one set rectangular of system to another with the same origin	5
b)	Find the area of the triangle formed by the straight lines $ax^2 + 2hxy + by^2 = 0$ and $bx + 2xy + x = 0$;	5
4.a)	Find the equation of the tangent at the point (x_1, y_1) to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$	5
b)	What is circle? Find the equation of the circle through the points (1,2), (3,4) and tangents to the line $3x+y-3 = 0$.	5
5.a)	Define sub tangent and subnormal. Show that the subnormal is constant for all points on the parabola and is equal to the semi latus rectum	5
b)	Reduce the equation $4x^2 - 4xy + y^2 - 8x - 6y + 5 = 0$ to the standard form and find its vertices and focus point.	5
6.	Consider the equation $ax = b$, prove that i) If $a \neq b$ *then* $x = b/a$ is a unique solution of $ax = b$. ii) If $a = 0, but\ b \neq 0$ *then* $ax = b$ has no solution. iii) If $a = 0, and\ b = 0$ *then* every scaler k is a solution of $ax = b$.	10
7.a)	Find the inverse of the matrix p = $\begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$	5
b)	Solve each of the following systems: i) $x + 2y - 3z = -1$, $-3x + y - 2z = -7$, $5x + 3y - 4z = -2$ ii) $x + 2y - 3z = 1$, $2x + 5y - 8z = -4$, $3x + 8y - 13z = 7$	5

Department of Computer Science and Engineering
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1st Year 1st Semester Final Examination' 2015. (Session: 2014-15)

Course Title: Physics **Time: 3.00 Hours**
Course Code: PHY 1125 **Full Marks: 50**

Answer Any Five from the Given Questions

(Note: Numbers in the right margin indicate marks for each question. Answer the questions sequentially.)

1.	(a)	Define electric charge. Explain that charge is quantized.	1+2=3
	(b)	What is electric dipole? Deduce the expression of electric field due to an electric dipole at a point on the perpendicular bisector of the dipole.	1+4=5
	(c)	Determine the force between two free electrons spaced at $1A^{o}$ apart.	2
2.	(a)	State and explain Gauss's law of electrostatics.	2
	(b)	Derive the expressions of electric field intensity due to a uniformly charged sphere at appoint (i) outside the surface (iii) on the surface and (iii) inside the surface.	6
	(c)	Graphically show the variation of electric field due to a uniformly charged sphere for outside, on and inside surface of the sphere.	2
3.	(a)	Define capacitor and capacitance. What is the unit of capacitance?	2
	(b)	State Faradays law and Lenz's law. Deduce the expression of growth of current in a circuit containing inductance and resistance.	2+4=6
	(c)	What are dielectrics? Also define dielectric constant.	2
4.	(a)	What is blackbody? How an ideal black body can be constructed?	1+2=3
	(b)	Define photo electric effect and photo electron. Explain graphically the characteristics of photo-electric effect.	4
	(c)	Define Einstein's photo-electric equation and define work function.	3
5.	(a)	What is radioactivity? State the fundamental laws of radioactivity.	1+2=3
	(b)	Define half life and mean life of radioactive substance. Deduce the relations of half life and mean life with decay constant.	2+3=5
	(c)	1 gm of radium is reduced by 2.1 milligram in 5 years by α-decay. Calculate the half life of radium.	2
6.	(a)	Define crystalline and amorphous solids. Distinguish between them.	4
	(b)	What are Bravais lattices? Give the characteristics of three dimensional Bravais lattices in a table.	6
7.	(a)	Distinguish between Fresnel and Fraunhofer classes of diffraction.	3
	(b)	Discuss the Fraunhoffer diffraction due to a single slit and discuss the intensity distribution on the screen.	7