Begum Rokeya University, Rangpur

Department of Computer Science and Engineering

B.Sc. (Engg.) 4th Year 1st Final Semester-2014 (session: 2010-11)

Course Title: Artificial Intelligence; Course Code: CSE 4102

Full Marks: 50 **Time: 3.00 Hours**

Answer Any Five from the Given Questions

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

1.	**a)**	What is Artificial Intelligence? In your own words, define intelligence and why intelligence tests can hide the real measure of intelligence.	**1+3=4**
	b)	Represent the following facts in predicate logic i. Everybody has a head ii. Some students of CSE like programming and also like algorithm course iii. Those students of CSE want to go for picnic will have to pay 400 TK.	**3**
	c)	Define: Epistemology, knowledge, meta-knowledge.	**3**
2.	**a)**	What is resolution? Given the following: Prince is mega star. Mega stars are rich. Rich people have fast cars. Fast cars consume a lot of petrol. Using resolution try to draw the conclusion: prince's car consumes a lot of petrol.	**4**
	b)	Discuss the different levels of knowledge representation.	**3**
	c)	Prove validity of modus pones and chain rule of inference rule.	**3**
3.	**a)**	Write down the symbols and rules of combination permitted in FOPL.	**3**
	b)	Define clausal form. What are properties of clausal form?	**3**
	c)	Convert the following FOPL into clausal form: $\exists x \forall y(\forall z P(f(x), y, z) \rightarrow (\exists u Q(x, u) \& \exists v R(y, v)))$	**4**
4.	**a)**	What is Unification? Write the basic rules for recursion in prolog	**1+3**
	b)	Write down a prolog program to find factorial of n in prolog as a example of recursion.	**3**
	c)	What is difference between red cut and green cut?	**3**
5.	**a)**	Describe the basic structure of a prolog program	**3**
	b)	What do you understand by "backtracking"? How backtracking is used in prolog for matching goal.	**4**
	c)	What is the cut predicate? Why is it used? Explain with example.	**3**
6.	**a)**	What are advantages of fuzzy set over general set?	**2**
	b)	Explain dilation, concentration and normalize operation on fuzzy set with example.	**3**
	c)	Write a PROLOG program that answer questions about family members and relationship. Include predicates and rules which define sister, brother, father, mother, grandchild, grandfather and uncle. The program should be able to answer queries such as following: ?- father (X, bob). ?- grandson(X,Y). ?-uncle (bill, sue). ?- mother (mary, X).	**5**
7.	**a)**	Define "neural network". Describe the model of an artificial neuron.	**3**
	b)	What is supervised learning and unsupervised learning? Describe working principle of supervised learning with example.	**4**
	c)	Describe the role of each components of a general learning model and why it is needed for the learning process.	**3**

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Course: CSE 4104 (Compiler Design)

Time: 3 Hours | Full Marks: 50

Answer any five of the following seven questions. Figure in the right margin indicate full marks.

1. a) Explain the various phases of a compiler in detail. 6
   b) Also write down the output for the following expression after each phase, 4
   position: = initial + rate*60.

2. a) When a grammar becomes ambiguous? How the following grammar is ambiguous? Explain with parse tree 4
   String → string + string | string – string |0 |1 |2 |3 |4 |5 |6 |7 |8
   b) What do you mean by left recursive and left factoring? Write down the algorithm of left recursive and left factoring from a grammar. 6

3. a) What are the difference quadruples and triples? Suppose an statement 6
   A: = -B* (C+D), Translate it to triple and quadruple?
   b) Define symbol table. Write down the contents of a symbol table. 4

4. a) What is parse tree? Briefly describe shift reduce parsing. 5
   b) Explain the necessity of intermediate code generation. 3
   c) What are the necessary conditions to be carried before construction of predictive parsing? 2

5. a) Identify the token and, lexemes in the following function: 4

```
function gcd (m, n: integer): integer;
begin
if n = 0 then gcd := m
else gcd := gcd (n, m mod n)
end; ( * of gcd*)
```

   b) What are the different types of errors a program can contain? 2
   c) Describe the different error recovery techniques. 4

6. a) What is polish notation? Write down the algorithm to evaluate prefix expression. Apply this algorithm to evaluate the following expression 6
   ((15/(7-(1+1)))*3)-(2+(1+1))
   b) Discuss about storage allocation strategies. 4

7. a) Explain the various issues in the design of code generation. 4
   b) Construct the DAG for the following basic block 4

```
d : = b * c
e : = a +b
b : = b * c
```

   c) Define *l*-value and r-value. 2

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Department of Computer Science and Engineering

B.Sc. (Engg.) 4th Year 1st Final Semester-2014 (session: 2010-11)

Course Title: Project Management; Course Code: CSE 4106

Full Marks: 50 **Time: 3.00 Hours**

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 software project management. What are the goals to study software project management?	**2+3=5**
	b)	Write down some points with explanation that make sure your project will succeed.	**5**
2.	**a)**	How can you differentiate stakeholder & user?	**4**
	b)	Briefly describe vision and scope document with example.	**6**
3.	**a)**	What is risk management?	**1**
	b)	Explain risk management process.	**5**
	c)	How will you monitor risk?	**4**
4.	**a)**	Why inspection is important? Describe its importance in terms of software project management.	**3**
	b)	What is preparation, page-by-page review, follow-up in the time inspection?	**3**
	c)	Write a short note about walkthrough.	**4**
5.	**a)**	What is vision control system and subversion? Write down some differences between them.	**4**
	b)	Define testing in terms of software testing. What is unit testing?	**2+1=3**
	c)	Write down some goal of state plan.	**3**
6.	**a)**	Why schedule optimization is necessary?	**3**
	b)	State the smoke test.	**2**
	c)	What kind of iteration involved in test execution? Briefly describe it.	**5** **4**
7.	**a)**	Explain the network planning model with example.	3
	b)	What are the important organizational questions for project manager? Explain.	**4**
	c)	Describe about effectiveness and efficiency of communications.	**3**

Begum Rokeya University, Rangpur

Department of Computer Science and Engineering

Course: CSE 4107 (Computer Graphics and Multimedia)

Time: 3 Hours | Full Marks: 50

Answer any five of the following seven questions. Figure in the right margin indicate full marks.

1.	a)	What do you understand by the term "CAD"?	2
	b)	What is the meaning of DPI?	2
	c)	What are the differences between raster scan display and random scan display?	3
	d)	What is the importance of learning computer graphics? In which areas computer graphics can be implemented?	3
2.	a)	Discuss the DDA algorithm for drawing a line.	5
	b)	Discuss how a circle is drawn using mid-point circle drawing algorithm.	5
3.	a)	Define "World co-ordinate" and "viewing co-ordinate".	2
	b)	Deduce an expression for window-to-viewport coordinate transformation.	3
	c)	What is rigid body translation? You are given a translation vector (T_{vx}, T_{vy}). How can you translate a point with this vector?	5
4.	a)	What are clipping and clip window?.	2
	b)	Discuss the general pivot point rotation.	4
	c)	What is shear? Briefly discuss about shear transformation.	4
5.	a)	What do you mean by RGB and CMY model? Draw color cube for both model and find relationship between them and also find CMY color values if RGB value is (0.7, 0.3, 0.5)	5
	b)	Convert from CMY to HSV color, where C =0.7, M = 0.5 and Y = 0.4	5
6.	a)	Define shielding. What are the primitive types of clipping?	3
	b)	Explain how a line is clipped against a rectangular clip window.	5
	c)	What are the differences between polygon surface and polygon table.	2
7.	a)	What do you mean by multimedia?	1
	b)	Explain about how audio and video used for multimedia.	4
	c)	Explain in detail about authoring in multimedia.	5

Begum Rokeya University, Rangpur.

Department of Computer Science and Engineering

B.Sc. (Engg.) 4th Year 1st Semester Final Examination-2014

Course Title: Wireless Networks; Course Code: CSE 4109

Total Marks: **50** Time: **3.00 hours**

Answer any five the questions.

[Note: Numbers on right margin indicate the marks for each question. Answer the question sequentially]

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1. **a)** What is Cluster? **1**

b) What are the disadvantages of cellular systems with small cells? How can we overcame? **3**

c) Explain Cell dragging concept in microcell. **2**

d) Prove that for a hexagonal geometry, the co-channel reuse ratio is $Q = \sqrt{3N}$, where $N = i^2 + ij + j^2$ **4**

2. **a)** What are the advantages of cellular mobile communication systems over conventional mobile telephone system? **2**

b) Explain the Hand of strategies between two cell in cellular system. **4**

c) If a signal to interference ratio of 15dB is required for satisfactory forward channel performance of a cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is (a) n = 4 and (b) n = 3 **4**

Assume that there are six co-channel cell in the first tier and all of them are same distance from the mobile. Use suitable approximations.

3. **a)** What is co-channel interference? Explain the concept of co-channel interference. **4**

b) Derive an expression of signal to interference ratio in terms of co-channel reuse ratio. **4**

c) Mention any two advantages and limitation of CDMA system. **2**

4. **a)** Explain Indoor propagation model. **4**

b) Find the median path loss using Okumura's model for d = 50km, h_{te} = 100m, h_{re} = 10m in a suburban environment. If the base station transmitter radiates a EIRF of 1 KW at a carrier frequency of 900 MHz. (Assume from Okumura curves, G_{AREA} = 9dB and A_{mu} = (900MHz(50km)) = 43dB. **3**

c) Write down the difference between 2G and 2.5G wireless network. **3**

5. **a)** Explain Okumura Model. **5**

b) Write down the PCS extension to Hata model. **2**

c) With diagram explain the layered architecture of Bluetooth. **3**

6. **a)** Define mobile IP? Explain the limitation of mobile IP. **1+3=4**

b) Discuss different types of components of mobile IP. **4**

c) In case of mobile IP, define registration and de-registration. **2**

7. **a)** What are the bandwidth and chip rates used in WCDMA? **5**

b) Write the difference between network decided and mobile assisted handovers. **5**

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Department of Computer Science and Engineering

Course: SOC 2223 (Sociology)

Time: 3 Hours | Full Marks: 50

Answer any five of the following seven questions. Figure in the right margin indicate full marks.

		Marks
1.	a) How can you define sociology? What are the importances of sociology?	6
	b) Differentiate between sociology, political science and anthropology.	4
2.	What do you mean by socialization? What are the major agents of socialization? Discuss briefly.	10
3.	What is culture? Discuss some characteristics of culture.	10
4.	Describe the growth factors and characteristics of capitalism.	10
5.	What is technology? Discuss the impact of technology on the society.	10
6.	What is stratification system? What are the features of stratification? Discuss briefly.	10
7.	Define crime. What are the causes of crime in Bangladesh? Discuss.	10

Department of Computer Science & Engineering

Begum Rokeya University, Rangpur

Semester Final Examination-2014 | 4th year 1st Semester | Year Session: 2010-2011

Course Title: Bangladesh Studies | Course Code: GEN 3221

Time: 3.0Hours | Full Marks: 50

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

1.	Describe the causes of Sepoy Mutiny of 1857. Do you consider it was the First war of Indian Independence?	10
2.	Analyze the various stages of Liberation war of 1971 in Bangladesh.	10
3. (a)	Define Constitution.	1
(b)	How has the Constitution of Bangladesh been established?	4.5
(c)	State the features of a good Constitution.	4.5
4.	Discuss the function of modern legislature except law-maker.	10
5.	What is meant by coup? Discuss the military coups in Bangladesh.	10
6. (a)	What do you mean by Globalization?	1
(b)	Discuss the causes of Globalization.	4.5
(c)	Do you think that Globalization is the New-Colonialism? Discuss.	4.5
7.	Define foreign policy. Illustrate the determinants of foreign policy in Bangladesh.	10