UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2010/2011

COURSE NAME	:	MULTIMEDIA EXPERT SYSTEM
COURSE CODE	:	BIT 3243
PROGRAMME	:	BACHELOR OF INFORMATION TECHNOLOGY
DATE	:	APRIL / MAY 2011
DURATION	:	2 HOURS AND 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS.

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

Instruction: Answer **ALL** questions.

Q1 Define each of the following terms:

(a) Multimedia Expert System (2 marks)

(b) Knowledge base (2 marks)

(c) Knowledge Acquisition (2 marks)

(d) Knowledge Elicitation (2 marks)

Q2 (a) Give **TWO (2)** reasons why we need Expert System. (4 marks)

(b) Describe **TWO (2)** components of explanation facilities in Expert Systems. (4 marks)

(c) Explain **TWO (2)** types of questions in interviewing methods. (4 marks)

Q3 (a) Discuss **THREE (3)** keys of effective design in the interface development phase. (9 marks)

(b) Explain **THREE (3)** styles of interface design. (9 marks)

Q4 Given **Figure Q4**, answer the following questions:

```
Swallow is a bird
Canary is a bird
Bird has feathers
Bird travel by fly
```

Figure Q4

(a) Determine objects in the **Figure Q4.**

(5 marks)

(b) Transform the objects in **Q4(a)** into semantic networks.

(6 marks)

Q5 Given the case study, answer the following questions:

Assume a patient comes into a doctor's office complaining about certain illnesses. The doctor needs to determine the patient's real problem based on his general medical knowledge and information given by the patient. The knowledge extracted from the working memory is as follows:

```
Patient's temperature = 102
Patient has been sick for two month
Patient has a sore throat
```

```
RULE 1
IF      the patient has a sore throat
AND     we suspect a bacterial infection
THEN    we believe the patient has strep throat

RULE 2
IF      the patient's temperature is > 100
THEN    the patient has a fever

RULE 3
IF      the patient has been sick over a month
AND     the patient has a fever
THEN    we suspect a bacterial infection
```

Figure Q5

Determine the patient's problem by using Forward Chaining technique and the information supplied in **Figure Q5.**

(10 marks)

Q6 A case study is given in **Figure Q6**.

```
RULE 1
IF    patient never have medical treatment
AND   duration of painful less than 12 weeks
AND   temperature less than 100'F
THEN  acute sinusitis.

RULE 2
IF    acute sinusitis
AND   pain comes even by slightest touch
THEN  remedy is; Cefpodoxime proxetile; 200-400 mg; twice a day.

RULE 3
IF    acute sinusitis
AND   cheeks with a sensation of a great weight bearing down on the
      head
THEN  remedy is; Cefprozil; 250-500 mg, once a day.

RULE 4
IF    acute sinusitis
AND   have a swollen membrane of cheeks
THEN  remedy is; Cefuroxime Axetil; 250-500 mg, twice a day.

RULE 5
IF    patient had more than 3 times medical treatment
AND   duration of painful more than 12 weeks
AND   temperature 100'F and above
THEN  chronic sinusitis.

RULE 6
IF    chronic sinusitis
AND   patient had blockage and stuffed up nose
THEN  remedy is; Dexamethasone Nasal Steroid Spray.

RULE 7
IF    chronic sinusitis
AND   cheeks with a sensation of a great weight bearing down on the
      head
THEN  need an Endoscopic Sinus Surgery

RULE 8
IF    chronic sinusitis
AND   patient had blendless or greenish mucus from the nose
THEN  remedy is; Pulsatile Saline; take every 2 hours for up to 2
      days.
```

Figure Q6

Based on Figure Q6, draw:

(a) the Decision Tree for early stage of Sinusitis's symptom diagnosis. (5 marks)

(b) the Inference Network of Acute Sinusitis and Chronic Sinusitis. (16 marks)