



October 2011

## Fundamental IT Engineer Examination (Afternoon)


### Answers and Marks(in blue)

#### Q1

##### Subquestion 1

A	b)	0	0	0	0	3
		0	1	1	0	
		0	1	1	0	
		0	0	0	0	

##### Subquestion 2

- |   |    |  |   |
|---|----|--|---|
| A | g) | $X_1 \cdot \neg Y_1 \cdot Y_2$   | 2 |
| B | b) | $X_1 \cdot \neg X_2 \cdot Y_2$   | 2 |
| C | d) | $X_2 \cdot Y_2$  | 2 |
| D | a) |  (AND gate) | 3 |

#### Q2

##### Subquestion

- |   |    |                  |   |
|---|----|------------------|---|
| A | b) | $X - 30_{16}$    | 3 |
| B | c) | 1 PEC*<br>9<br>* | 3 |
| C | e) | $20_{16}$        | 2 |
| D | d) | $DF_{16}$        | 2 |
| E | b) | $20_{16}$        | 2 |

### Q3

#### Subquestion 1      A and B can be swapped

- |   |                              |   |
|---|------------------------------|---|
| A | e) Time_slot -or- f) Weekday | 1 |
| B | f) Weekday -or- e) Time_slot | 1 |
| C | a) Bookable_period           | 2 |
| D | d) Reservation               | 2 |

#### Subquestion 2

- |   |  |   |
|---|--|---|
| E | f) NOT IN  | 2 |
| F | e) Lab.lab_id, no_computers_in_total                     | 2 |
| G | b) COUNT(Reservation.student_id) = no_computers_in_total | 2 |

### Q4

#### Subquestion 1

- |   |        |   |
|---|--------|---|
| A | f) 676 | 3 |
| B | d) 256 | 3 |

#### Subquestion 2

- |   |                         |   |
|---|-------------------------|---|
| C | a) only method 1        | 2 |
| D | d) only methods 1 and 2 | 2 |
| E | a) only method 1        | 2 |

**Q5****Subquestion 1**

- A    b) CB.EOF = 'No' OR EB.EOF = 'No' 2
- B    d) Move EB record to consolidated record 2  
       Write consolidated record  
       Read EB record
- C    a) Move CB record to consolidated record 2  
       Write consolidated record  
       Read CB record
- D    b) CB.Date + CB.Time : EB.Date + EB.Time 2

**Subquestion 2**

- E    c) Driver Name 2
- F    d) Name 2

**Q6****Subquestion 1**

- A    d)

0	4	9	11	6	3
4	0	5	7	2	7
9	5	0	2	4	12
11	7	2	0	2	14
6	2	4	2	0	3
3	7	12	14	3	0

6**Subquestion 2**

- B    a) 1,  $i \leq n-1$ , 1 4
- C    d)  $i+1$ ,  $j \leq n$ , 1 4

**Subquestion 3**

- D    e)  $O(n^3)$  3
- E    d)  $O(n^2)$  3

## Q7

### Subquestion 1

- |   |                                 |   |
|---|---------------------------------|---|
| A | b) <code>ch = s[*n]</code>      | 3 |
| B | c) <code>(*n)++</code>          | 3 |
| C | d) <code>!isdigit(s[*n])</code> | 3 |
| D | f) <code>s[*n] - '0'</code>     | 3 |

### Subquestion 2

- |   |      |   |
|---|------|---|
| E | f) 7 | 4 |
| F | d) 5 | 4 |

## Q8

### Subquestion

- |   |                                      |   |
|---|--------------------------------------|---|
| A | e) <code>Student</code>              | 2 |
| B | a) <code>buildRoster(file)</code>    | 3 |
| C | b) <code>computeGrade()</code>       | 3 |
| D | e) <code>printResult()</code>        | 3 |
| E | d) <code>roster[i]</code>            | 3 |
| F | f) <code>UndergraduateStudent</code> | 3 |
| G | b) <code>GraduateStudent</code>      | 3 |