

## 一. 英翻中 (40分)

Based on a sender-advertised approach to building a mesh, ODMRP uses the *forwarding group* concept, in which a set of nodes forwards multicast data along the shortest paths between any member pairs. In ODMRP, each source establishes and updates a group membership and a multicast mesh *on demand*. By flooding a member advertising packet, a source node starts building a forwarding mesh for the multicast group, collecting membership information at the same time. When a node receives a nonduplicate message requesting admission to the multicast group, it stores the upstream node identity and rebroadcasts the packet. When this request message packet reaches a multicast receiver, the receiver creates or updates the source entry in the *member table*. The system then uses the member table to prepare periodic control packets and broadcasts them via the receiver node. The nodes relay the packets back toward the source along the reverse path that the member-advertising packet traverses. This process constructs or updates the routes from sources to receivers and builds a mesh of nodes, called the *forwarding group*. Multicast sources send the member advertising packet periodically to refresh the membership information and update the routes. A soft-state approach maintains the multicast group and the mesh.

(Source: Prasant Mohapatra, Chao Gui, and Jian Li. "Group Communications in Mobile Ad Hoc Networks." IEEE Computer Magazine, Feb. 2004.)

## 二. 中翻英(40分)

OFDM(Orthogonal Frequency Division Multiplexing)的技術主要在於降低符號間干擾(Inter Symbol Interference; ISI)以提高整體傳輸速率。由於在無線環境中,訊號傳送可能經過多個路徑的傳送後才到達目的地,此多重路徑傳送所造成的影響,會使先後傳送的符號之間彼此重疊而造成干擾,其嚴重程度通常視傳輸速率的快慢而定。在高速率傳輸時,時間延遲可能佔有傳輸符號相當大的比例,造成嚴重的符號間干擾,使得通訊品質降低。OFDM 解決符號間干擾的方法,是將一個無線電頻道劃分為多個子載波頻道,在這些子載波頻道中傳送較低速率的符號,但整體而言其傳送速率並未降低。

## 三. 選擇題(一題兩分)

1. The early railroads were\_\_\_\_the existing arteries of transportation: roads, turnpikes, canals, and other waterways.

(A). those short lines connected (B). short lines that connected (C). connected by short lines (D). short connecting lines

2. During the flood of 1927, the Red Cross, \_\_\_\_out of emergency headquarters in Mississippi, set up temporary shelters for the homeless.

(A). operates (B). is operating (C). has operated (D). operating

3. The quantum theory states\_\_\_\_, such as light, is given off and absorbed in tiny definite units called quanta or photons.

(A). energy that (B). that it is energy (C). it is energy (D). that energy

(背面仍有題目,請繼續作答)

4. Geysers are found near rivers and lakes, where water drains through the soil \_\_\_\_\_.  
(A). surface below the deep (B). deep below the surface (C). the deep below surface (D). the deep surface below
5. On March 1, 1867, \_\_\_\_\_ to the Union when President Andrew Johnson's veto was overridden.  
(A). since the state of Nebraska had been admitted (B). admitted that the state of Nebraska  
(C). the admission of the state of Nebraska (D). the state of Nebraska was admitted
6. The city of Kalamazoo, Michigan, derives its name from a Native American word \_\_\_\_\_ "bubbling springs."  
(A). meant (B). meaning (C). that is meant (D). whose meaning
7. The air inside a house or office building often has higher concentrations of contaminants \_\_\_\_\_ heavily polluted outside air.  
(A). than does (B). more (C). as some that are (D). like of
8. Emily Dickinson's garden was a place \_\_\_\_\_ great inspiration for her poems.  
(A). that she drew (B). by drawing her (C). from which she drew (D). drawn from which
9. The best known of all the Arctic birds, \_\_\_\_\_  
(A). birdwatchers favor ptarmigans (B). being ptarmigans' and birdwatchers' favorites  
(C). favored by both ptarmigans and birdwatchers (D). ptarmigans are a favorite of birdwatchers
10. Any electric products sold in this famous department store will be \_\_\_\_\_ for one year.  
(A) protected (B) guaranteed (C) ensured (D) assured