●不可使用電子計算機

1. 選擇題 (Basic Grammar) (30%) (3% each)

(1). Not only _____ as a cure-all but it also protects peach trees from harmful pests if garlic is scattered in the soil around the trees.
(A) garlic is thought of (B) garlic does think of
(C) does garlic think of (D) is garlic thought of

(2). A cockroach can live in the middle of the desert or under a kitchen sink. Recently, roaches _____ in TV sets.
(A) are found to live (B) find living
(C) have been found living (D) have found being lived

(3). Tornadoes are powerful forces of winds which can tear down the houses in one side of the road while leave those on the other side _____.
(A) untouched (B) untouching (C) touch (D) touched

(4). If you _____ severe symptoms of altitude sickness and they _____ away, go down the mountain. Otherwise, your life will be in danger.
(A) had; didn't go (B) have; don't go
(C) had had; hadn't gone (D) would have; won't go

(5). _____ their flippers, large sea turtles pull themselves along the sand.
(A) Used (B) Using (C) To use (D) To using

(6). Kudzu was planted _____ its tough roots could help hold back the soil.
(A) which (B) when (C) what (D) where

(7). _____ in the rain forests of Sumatra, the rafflesia is the world's largest flower.
(A) Found (B) Find (C) To be found (D) To find

(8). El Ninos are weather conditions _____, when they occur, they create big changes in temperature and rainfall.
(A) which (B) , which (C) that (D) whose

(9). Vipers with deadly poison don't usually strike _____ they are disturbed or are looking for food.
(A) not until (B) unless (C) once (D) as soon as

(10). A hunter who once shot an ostrich _____, to his great surprise, that the big bird had swallowed a bunch of diamonds.
(A) discovering (B) had discovered (C) would discover (D) discovered

2. 請以中文敘述下列文章或摘要之大意

(1) (15%)

The highly conserved protein actin not only functions as a critical cytoplasmic actor in cell shape and movement, but also, as shown recently, has a nuclear role in regulating gene expression. The frequent companion of cytoplasmic actin is the motor protein myosin; therefore, it is not surprising that a myosin isoform (NM1) can be found in the nucleus. [From Genes Dev. 22, 322 (2008)]

(2) (15%)

Polymer nanoparticles have been explored for more accurate delivery of drugs to improve efficacy and reduce toxicity within the body. For tissues lacking vasculature, such as articular cartilage, the challenge is to get the drug through the dense extracellular matrix (ECM) via a localized injection without removal in the synovial fluid. [From Nat. Mater. 7, 10.1038/nmat2116 (2008)]

(3) (15%)

In most eukaryotic genes, the protein-coding sequences are interrupted by noncoding introns. These introns are removed from the pre-mRNA transcript by RNA splicing, a process that provides an additional and sometimes critical layer of gene regulation. Unlike more complex organisms, few genes in the yeast Saccharomyces cerevisiae contain introns. [From Mol. Cell 27, (2007)]

(4) (25%)

How Yeast Responds to Change

(From Science Volume 319, Number 5862, Issue of 25 January 2008)

The origin of the rapid adaptive response of yeast cells to changes in environmental osmolarity has been unclear. Mettetal *et al.* (p. 482; see the Perspective by Lipan) now show that increases in extracellular osmolarity activate the high-osmolarity glycerol signaling pathway, which changes transcription of particular target genes. By measuring the cellular response to pulses of medium with increased ionic strength, the authors were able to develop a predictive model of the dynamics of this regulatory system. Rather than changes in gene expression, which have often been suggested to be at the core of the response to osmotic shock, the fast response is actually dominated by a nontranscriptional response that probably involves altered glycerol transport.