

國立中山大學 107 學年度碩士暨碩士專班招生考試試題

科目名稱：科技英文【機電系碩士班戊組】

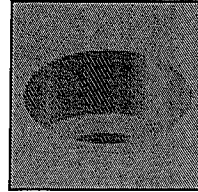
題號：438002

※本科目依簡章規定「不可以」使用計算機(混合題)

共 3 頁第 1 頁

I. 選擇題 You are to choose the word, phrase or selection that best completes the sentence or meets the meaning of the condition. Then, on your answer sheet, find the number of the question and mark your answer. (30% in total, 3% each, 單選, 共 30 分, 每題 3 分, 請劃記於答案卡上)

1. Provide the name for the right hand side drawing.
(a) Boss, (b) Lug, (c) Counterbore, (d) Chamfer.



2. () is a measure of the stiffness of a solid material. It is a mechanical property of linear elastic solid materials. (a) Young's modulus, (b) Strain, (c) Shear modulus, (d) Stress.
3. Photolithography is used in microfabrication because (a) we need to take a photograph of the microdevice, (b) to create patterns in microscale on substrates, (c) to create pictures in microscale, (d) none of the above.
4. () is the mathematical study of continuous change. It has two major branches differential and integral calculus. (a) Calculus, (b) Finite element, (c) Vector, (d) Series.
5. What is not included in mechanics? (a) Dynamics, (b) Acoustics, (c) Hydraulics, (d) Material science.

According to below figure, choose adequate selections.

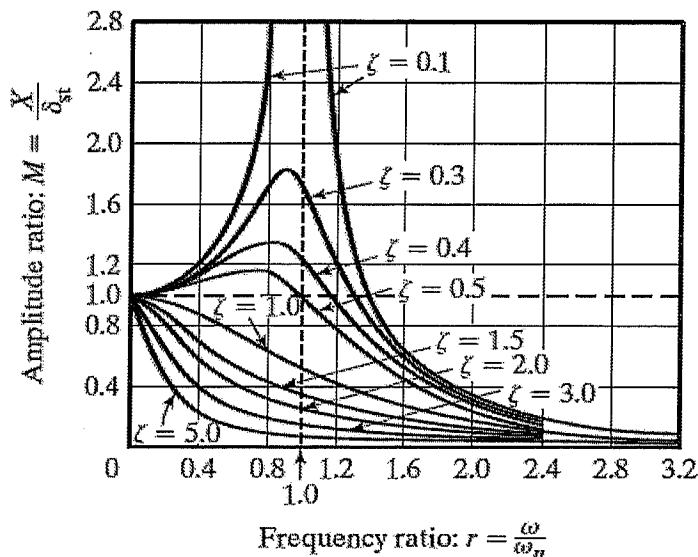


Figure for no. 6 to 8.

6. Any amount of damping ratio (ζ) () the magnification factor (M) for all values of the forcing frequency. (a) enhances, (b) increases, (c) induces, (d) reduces.
7. For any () value of r , a higher value of ζ reduces the value of M . (a) unknown, (b) specified, (c) significant, (d) variation.
8. The reduction in M in the () of damping ratio is very significant at $r = 1$. (a) relevance, (b)

試題隨卷繳回

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providence, (c) presence, (d) vibration.

Read this article and chose adequate selections.

Academic research papers are typically broken down into five sections: abstract, introduction, materials and methods, results, and discussion. A few journals have slightly different formats due to their space constraints or target audience. Each part of the paper serves a unique purpose and can help your research project in a different way.

The abstract provides a summary of the paper. It usually highlights the main content that the authors investigated, shows the key methods of their research, and gives an overview of the authors' conclusions. Reading the abstract will help you decide if the article was what you were looking for, or not, without spending a long time reading the whole paper. Abstracts are usually accessible for free either online at journals' websites or in scientific literature databases.

The introduction gives background information about the topic of the paper, and sets out the specific questions to be addressed by the authors. The quantity and thoroughness of the background information will depend on both the authors' proclivities. Throughout the introduction, there will be citations for previously published articles or reviews that discuss the same topic. Reading the introduction is a test of whether or not you are ready to read the rest of the paper; if the introduction doesn't make sense to you, then the rest of the paper won't either.

9. Where readers can find abstracts? (a) brochures, (b) manuals, (c) journal's websites or databases, (d) newspapers.

10. Which section provides citations for readers to refer to additional background reading? (a) abstract, (b) introduction, (c) summary, (d) discussion.

II. 中翻英 Chinese-English Translation. 參考以下中文內容，將中文內容翻譯成英文，寫於答案紙上。(共 28 分，每題 7 分) Translate the following Chinese passages into English passages. Write your answer on the answer sheet. (28 % in total, 7 % each)

1. 是什麼因素導致智慧型手機大受歡迎呢？也許其成功的主要原因在於他容易與便利操作。(7 %)

2. 基於前述的研究目的，本研究所探討的四組主要研究問題如下。(7 %)

3. 黃銅是由兩種金屬，鋅和銅所組成的合金。(7 %)

4. 儘管這些問題的研究仍在起步的階段，其結果將會在幾個領域上有廣泛意涵(implications)。(7 %)

III. 英翻中 English-Chinese Translation. (共 32 分，每題 8 分)。參考以下英文內容，於答案紙上作答。 Translate the following English passages into Chinese passages. Write your answer on the answer sheet. (32% in total, 8% each)

1. The ANOVA indicates a significant main effect for proficiency ($F = 10.46, P = 0.002$). However, no significant main effect for grade level ($F = 1.49, P = 0.23$) and no significant interaction effect proficiency-by grade level ($F = 2.03, P = 0.14$) were found.

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2. Mathematically this error has a magnitude equal to the product of the lever arm's length and the sine of the angle. If errors in parallax are to be avoided, the measuring system must be placed coaxially with the axis along which displacement is to be measured on the workpiece.

3. Various measurements must be made in order to evaluate these error motions. The data that is collected is typically analyzed with the aid of different types of polar plots because linear plots of the data are often difficult to interpret.

4. Associated with these issues about the ontological status of space and time was the question of the nature of true motion. Newton defined the true motion of a body to be its motion through absolute space. Those who, before or shortly after Newton, rejected the reality of space, did not necessarily deny that there is a fact of the matter as to the state of true motion of any given body.

IV. 以英文簡答下列文章中相關之問題。每題5分，共10分。Answer below questions in English. (10% in total, 5% each)

The Wright brothers read about these relatively primitive aircraft and realized none had suitable controls. They hoped that they could learn more about Flight Dynamics by watching birds in flight. The Wrights watched vultures, eagles and hawks maneuver with their wings in unstable air. Wilbur's favorite was the vulture, because it soared more than other birds. In physical terms, a soaring bird is able to achieve a perfect balance of the physical forces of lift, drift and gravity. Wilbur came to the conclusion that birds balance themselves in flight by adjusting the shape of their wings. In order to maintain what we call "lateral control", the Wrights would have first to change the shape of the wing.

There were three basic dimensions needed to control an aircraft. Of these three dimension, the first type of control needed in flight is for pith. Pitch controls the up-and-down movement of the nose; in other words, pitch is what allows an aircraft to descend or climb. The second type of control needed is for yaw. Yaw control allows the craft's nose to turn right of left, providing the aircraft's directional control.

1. According to above paragraph, why Wright brothers interest in bird observation?

2. The third type of needed control is roll. Describe the possible motion of roll and its purpose.

The End