

全国高等农业院校教材

# 英 语

(第 二 版)

## 快 速 阅 读

(上 册)

北京农业机械化学院主编

农机类专业用

农 业 出 版 社

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## 说 明

“快速阅读”是供训练和检查学生的阅读能力和速度之用。

本册共有 10 篇短文，与课文的 10 个单元 (set) 相配合，每篇短文后均有供检查理解程度的练习题。

使用本“快速阅读”时应注意以下几点：

1. 本册应由教师统一保管，每次使用时才发给学生；
2. 快速阅读在课堂上由教师指导，于限定时间（一般为阅读 5 分钟，作练习 5 分钟）内完成；
3. 阅读前不作预习；
4. 要求不查阅词典，文中少量生词已有注释；
5. 每次练习后要作阅读时间、速度和理解程度的记录；
6. 阅读时应尽量记住文章主要情节，作练习题时不能再翻阅所读短文。

编 者

1984年10月

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Class

Name

Date

## 1. Principal Views of an Object

Drawings and sketches are widely used as communication media that can quickly, accurately, and completely describe and convey information concerning an object from one person to another. Thus the ability to read and interpret drawings and sketches, as well as to make them, is a most useful skill. The basic principles presented in this section will be a great help, by themselves, in the understanding and interpretation of drawings.

There are two types of drawings and sketches. One type, pictorial, presents one view of an object arranged in such a position that it approximates the actual appearance of the object. Sufficient (足够的) information cannot generally be obtained from a pictorial drawing, since many of the lines do not represent the true lengths involved.

The other type, called multi-view drawings, show an object from two or more directions, so that the dimensions and details on all sides of the object can be seen in a true representation of their size. When each view is chosen in a direction perpendicular to one of the principal sides or surfaces of an object, the resulting drawing is called

**an orthographic projection of the object.**

**The three principal views of an orthographic projection are the front, top and side. Note that when an object is held in the hand so the front is being viewed, the top and side views are obtained by rotating (旋转) the object while the viewer is stationary (固定的). If the object cannot be moved, the viewer can move about the object and view it from three directions.**

**Reading time: Minutes**

### **Comprehension**

#### **I. True or false**

- 1. The ability to read and make drawings and sketches is a valuable asset.**
- 2. Sufficient information can generally be obtained from a pictorial drawing as it approximates the actual appearance of the object.**
- 3. Lines and surfaces of multi-view drawings appear in the views in their true length and area.**
- 4. An orthographic projection means that each view is parallel to one of the principal sides or surfaces of an object.**
- 5. The three principal views of an orthographic projection can be obtained by rotating the object while the viewer is stationary.**

#### **II. Multiple choice**

- 1. There are \_\_\_\_\_ types of drawings and sketches.**

- A. two
  - B. three
  - C. four
2. A pictorial presents \_\_\_\_\_ view of an object, which approximates the actual appearance of the object.
- A. one
  - B. two
  - C. three
3. Sufficient information can be obtained from \_\_\_\_.
- A. pictorial drawings
  - B. multi-view drawings
  - C. photographs
4. When each view is chosen in a direction perpendicular to one of the principal sides or surfaces of an object, the resulting drawing is called \_\_\_\_.
- A. an orthographic projection
  - B. an oblique projection
  - C. an isometric projection
5. The three principal views of an orthographic projection can be obtained by \_\_\_\_\_ the object while the viewer is stationary.
- A. fixing
  - B. revolving
  - C. swinging

Words per minute    Total number right    Percent





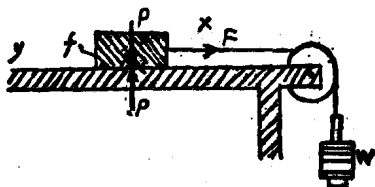
Class

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## 2. Friction and Lubrication

The chief cause of waste of energy in machines is the resistive force called friction. When two bodies are pressed together, resistance must be overcome before they can be made to slide over one another. If a body X presses on a body Y with a normal pressure  $P$  as shown, no force,



apart from that required to overcome friction, is required to cause sliding motion of X on Y, since the force  $P$  has no component (分力) at right angles to itself. In practice, a definite force tends to resist the sliding motion, and this resistive force is called the force of friction. Suppose a gradually increasing force,  $F$ , be applied to X; the resistive force,  $f$ , also increases up to a point when sliding commences. This point of limiting friction at which slid-

ing commences (开始) is called the limit of static friction. When motion occurs, there is still a resistive frictional force,  $f$ , but this is not quite as great as the limiting static frictional force. It is called the force of kinetic friction, and its value depends to some extent on the speed of sliding.

The object of lubricating moving parts is mainly to reduce friction, and so to minimize the energy absorbed and wasted by it

Lubrication is effected by imprisoning (限制) a film of oil between the two surfaces, so that friction between the metal surfaces is replaced by friction between the lubricant and the metals, and by friction within the lubricant. There must be no metal-to-metal contact, for if inadequate lubrication allows this to occur, the friction is greatly increased and a high temperature may rapidly be developed. The result may then be the running (熔化) of bearings, the seizure (卡住) of pistons in cylinders or severe wear of the sliding parts. Adequate lubrication requires a proper grade of lubricant and a satisfactory method of applying it.

Reading time: Minutes \_\_\_\_

### Comprehension

#### I. True or false

1. The energy losses in machines are caused chiefly

by the resistive force called friction.

2. Two bodies pressed together can be made to slide over one another before the resistance is overcome.
3. The resistance to the sliding motion is called the force of friction.
4. Lubrication reduces the friction by maintaining a film of oil between the two surfaces of contact.
5. Sometimes metal-to-metal contact must be allowed, and severe wear will not occur.

## II. Multiple choice

1. The point of limiting friction at which sliding commences is called the limit of \_\_\_\_\_ friction.
  - A. static
  - B. kinetic
  - C. impending
2. The value of kinetic friction \_\_\_\_\_ the speed of sliding.
  - A. is independent of
  - B. depends on
  - C. results in
3. A reduced friction and energy waste can be effected by
  - A. lubricating moving parts
  - B. reducing of the number of moving parts
  - C. both A and B
4. When a metal-to-metal contact occurs, there is an increasing \_\_\_\_\_ :

- A. lubrication
  - B. friction
  - C. waste of lubricant
5. A high temperature may result in \_\_\_\_\_
- A. the melting of bearings
  - B. the seizure of pistons in cylinders
  - C. both A and B

Words per minute	Total number right	Percent
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Class

Name

Date

### 3. Bearings

Bearings in farm equipment are required to hold the various power-transmission parts in position (在适当的位置). The proper bearing to use is determined by the amount of wear, the speed at which the shaft is turning, the load it must carry, and the amount of end thrust. Bearings are divided into two general classes: sliding, or plain, and rolling.

**Sliding Bearings** In plain bearings, the revolving shaft is supported by, and is in direct contact with, a fixed bearing surface. For this reason, friction is high, and the bearing should be lubricated. The bearing metal may be cast iron, babbit, bronze, or other material.

**Rolling Bearings** Bearings of this type have balls or rollers placed between the shaft and the supporting bearing, thus reducing the friction. They are, therefore, called antifriction bearings. The lubrication of ball and roller bearings serves to preserve the polished (抛光) surfaces from corrosion, to act as a cooling agent (冷却剂), and to protect the rubbing surfaces between the rollers, races and separators. Both ball and roller types of antifriction bear-

ings are used extensively on almost all power-operated farm equipment.

Ball bearings are bearings having one or more rows of small balls placed in a cage or holder. The balls are separated slightly, held in position by a retainer (保持架), and ride in grooves (槽) provided in the inner and outer races. Because of the small amount of surface in contact between the balls and the races, friction is very low. Ball bearings are designed to carry (1) radial loads at right angles to the shaft, (2) thrust forces that are parallel to the shaft or tend to shift (移动) the shaft out of position, and (3) a combination of radial and thrust loads.

Roller bearings differ from ball bearings in that small cylindrical rollers are substituted for the balls. This gives a much larger bearing surface, such as is necessary for a heavy load. There are also cages to hold the rollers apart, as for the ball bearings. Most roller bearings are designed for only radial loads.

Reading time: Minutes \_\_\_\_\_

### Comprehension

#### I. True or false

1. Sliding bearings are the bearings in which the revolving shaft is supported by a fixed bearing surface.
2. The friction of rolling bearings may be high as

the revolving shaft is in direct contact with a bearing surface,

3. The friction of antifriction bearings is much less than that of sliding bearings.
4. Only ball bearings are widely used on almost all power-operated farm equipment.
5. The friction of ball bearings is very low because the amount of their surface in contact between the balls and the races is small.

## II. Multiple choice

1. \_\_\_\_\_ are used extensively on almost all power-operated farm equipment.
  - A. Needle bearings
  - B. Tapered bearings
  - C. Ball and roller bearings
2. A comparison between sliding bearings and rolling bearings shows that the friction of the latter is \_\_\_\_\_.
  - A. relatively high
  - B. relatively low
  - C. comparatively great
3. Roller bearings differ from ball bearings in that small cylindrical rollers are substituted \_\_\_\_\_.
  - A. by the balls
  - B. for the balls
  - C. with the balls
4. Ball bearings usually have one or more rows of



small balls which are separated slightly and held in position by a \_\_\_\_\_ :

- A. inner race
  - B. outer race
  - C. retainer
5. Most roller bearings are designed for \_\_\_\_\_ only.
- A. axial loads
  - B. radial loads
  - C. thrust loads

Words per minute	Total number right	Percent
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