Q1:

Examine the AI literature to discover whether the following tasks can currently be solved by computers:

a. Playing a decent game of table tennis (Ping-Pong).

b. Driving in the center of Cairo, Egypt.

c. Driving in Victorville, California.

d. Buying a week's worth of groceries at the market.

e. Buying a week's worth of groceries on the Web.

f. Playing a decent game of bridge at a competitive level.

g. Discovering and proving new mathematical theorems.

h. Writing an intentionally funny story.

i. Giving competent legal advice in a specialized area of law.

j. Translating spoken English into spoken Swedish in real time.

k. Performing a complex surgical operation.

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   a. (ping-pong) A reasonable level of proficiency was achieved by Andersson's robot (Andersson, 1988).

   b. (driving in Cairo) No. Although there has been a lot of progress in automated driving, all such systems currently rely on certain relatively constant clues: that the road has shoulders and a center line, that the car ahead will travel a predictable course, that cars will keep to their side of the road, and so on. Some lane changes and turns can be made on clearly marked roads in light to moderate traffic. Driving in downtown Cairo is too unpredictable for any of these to work.

   c. (driving in Victorville, California) Yes, to some extent, as demonstrated in DARPA's Urban Challenge. Some of the vehicles managed to negotiate streets, intersections, well-behaved traffic, and well-behaved pedestrians in good visual conditions.

   d. (shopping at the market) No. No robot can currently put together the tasks of moving in a crowded environment, using vision to identify a wide variety of objects, and grasping the objects (including squishable vegetables) without damaging them. The component pieces are nearly able to handle the individual tasks, but it would take a major integration effort to put it all together.

   e. (shopping on the web) Yes. Software robots are capable of handling such tasks, particularly if the design of the web grocery shopping site does not change radically over time.

   f. (bridge) Yes. Programs such as GIB now play at a solid level.

   g. (theorem proving) Yes. For example, the proof of Robbins algebra described on page 360.

   h. (funny story) No. While some computer-generated prose and poetry is hysterically funny, this is invariably unintentional, except in the case of programs that echo back prose that they have memorized.

   i. (legal advice) Yes, in some cases. AI has a long history of research into applications of automated legal reasoning. Two outstanding examples are the Prolog-based expert systems used in the UK to guide members of the public in dealing with the intricacies of the social security and nationality laws. The social security system is said to have saved the UK government approximately $150 million in its first year of operation. However, extension into more complex areas such as contract law awaits a satisfactory encoding of the vast web of common-sense knowledge pertaining to commercial transactions and agreement and business practices.

   j. (translation) Yes. In a limited way, this is already being done. See Kay, Gawron and Norvig (1994) and Wahlster (2000) for an overview of the field of speech translation, and some limitations on the current state of the art.

   k. (surgery) Yes. Robots are increasingly being used for surgery, although always under the command of a doctor. Robotic skills demonstrated at superhuman levels include drilling holes in bone to insert artificial joints, suturing, and knot-tying. They are not yet capable of planning and carrying out a complex operation autonomously from start to finish.

Q2:
"Surely computers cannot be intelligent—they can do only what their programmers tell them." Is the latter statement true, and does it imply the former?

> **1.11** This depends on your definition of "intelligent" and "tell." In one sense computers only do what the programmers command them to do, but in another sense what the programmers consciously tells the computer to do often has very little to do with what the computer actually does. Anyone who has written a program with an ornery bug knows this, as does anyone who has written a successful machine learning program. So in one sense Samuel "told" the computer "learn to play checkers better than I do, and then play that way," but in another sense he told the computer "follow this learning algorithm" and it learned to play. So we're left in the situation where you may or may not consider learning to play checkers to be s sign of intelligence (or you may think that learning to play in the right way requires intelligence, but not in this way), and you may think the intelligence resides in the programmer or in the computer.

Q3:
"Surely animals cannot be intelligent—they can do only what their genes tell them." Is the latter statement true, and does it imply the former?

> **1.12** The point of this exercise is to notice the parallel with the previous one. Whatever you decided about whether computers could be intelligent in 1.11, you are committed to making the same conclusion about animals (including humans), *unless* your reasons for deciding whether something is intelligent take into account the mechanism (programming via genes versus programming via a human programmer). Note that Searle makes this appeal to mechanism in his Chinese Room argument (see Chapter 26).

Q4: choose the correct answer
1-
Which of the following are AI Subfield?

A. Machine learning
B. Computer vision
C. Speech Recognition
D. Natural language processing

2-
Jobs that are repetitive and require weak social skills are the easiest to be AI Replaced work.

A. TRUE
B. FALSE

According to the American Society of Automotive Engineers (SAE) The automatic driving is into Which level?

A. L1~L4
B. L1~L5
C. L0~L4
D. L0~L5

3-

Artificial intelligence is the research and development of theories, methods and application systems used to simulate, extend and expand human intelligence Of a new technological science.

A. TRUE
B. FALSE

4-

On the premise of ensuring data privacy and security, federated learning utilizes different data sources to cooperatively train models to improve breakthroughs in data bottlenecks.

A. TRUE
B. FALSE

5-

What is the performance of artificial intelligence in the stage of perceptual intelligence?

A. Machines begin to understand, think and make decisions like humans

6-

Artificial intelligence at this stage is still in the weak artificial intelligence stage.

A. TRUE
B. FALSE

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Where is the main foothold of symbolism?

A. The foothold is in neuron networks and deep learning.
B. The foothold is reasoning, symbolic reasoning and machine reasoning.
C. The foothold is perception and action.
D. The foothold is behavior control, adaptive and evolutionary computing.

8:

The current technology application directions of artificial intelligence mainly include?

A. Natural language processing
B. Control System
C. Computer vision

9-

Voice recognition refers to the recognition of audio data as text data.

A. TRUE
B. FALSE

10-

Which of the following are AI Application areas?

A. Wisdom education
B. Smart City
C. Smart home
D. Smart medical