## **网络编程学习通课后题**

## **作业一 Python基础知识（英文版）**

1. Grouping related code into a module makes the code easier to understand and use.（对）

2. Python only supports single inheritance, which is similar to C++.（错）

3. In Python, blocks of code are denoted by line indentation, which is rigidly enforced.（对）

4. The code block within every function starts with a colon (:) and is not indented.（错）

5. A variable is a pointer to the memory space, that is, it has a space pointing to the object connection.（对）

6. '\r' appears in every HTTP response, and it is called 'Carriage return'.（对）

7. In Python, two strings can be concatenated by the operator '\*'.（错）

8. Lists are the most commonly used data structure. They are declared by just equating a variable to '{}' or list.（错）

9. 'async' is a reserved keyword in Python3.6.（错）

10. An empty dictionary without any items is written with just two curly braces, like this: {}.（对）

11. The class has a documentation string, which can be accessed via ClassName. document.（错）

12. Class variables are defined outside a class but inside any of the class's methods.（错）

13. dict = {['Name']: 'Jack', 'Age':55 } is a right dictionary variable.（错）

14. The function 'chr(obj)' can convert an object obj to a string.（错）

15. There exists pure C++ private member in Python.（错）

16. A tuple element can be changed as needed.（错）

17. Integers in Python 3 are still of limited size.（错）

18. "|、^、&、<<、>>" are bit operators in Python.（对）

19. Different from some languages, Python supports a function with variable-length arguments.（对）

20. Both the while loop and the for loop can have an else clause, and when the loop ends naturally.（对）

## **作业二 网络基础知识填空题**

1. One can use the parameter (SO\_BROADCAST;so\_broadcast) to enable broadcast UDP packets to be sent and received.

2. TCP supports (two-way;two way) conversations made of streams of bytes by sending (or perhaps re-sending), receiving, and re-ordering small network messages called packets.

3. You can use (127.0.0.1;localhost) to indicate that you want packets from other programs running only on the same machine.

4. Rather than letting the operating system leave it forever paused in the recv() call, this client first does a (settimeout();settimeout) on the socket.

5. (Bytes;bytes) are the actual binary numbers that computers transmit back and forth during network communication, each consisting of eight binary digits and ranging from the binary value 00000000 to 11111111.

6. A UDP packet can be up to (64)kB in size.

7. (Well-known;Well known;Wellknown;well-known;wellknown) ports (0–1023) are for the most important and widely used services.

8. A (packet) is a byte string whose length might range from a few bytes to a few thousand bytes.

9. When you are done with the server, you can kill it by pressing (Ctrl+C;ctrl+c;ctrl c; Ctrl C) in the terminal where it is running.

10. A listening network client that will accept or record every single packet that it sees, without regard for whether the packet is correctly addressed, is known technically as a (promiscuous client).

11. HTTP uses the capacity of modern operating systems to support a plain-text network conversation between two different programs across an IP network by using the (TCP protocol; tcp protocal).

12. The UDP scheme is really quite simple; only an (IP address;ip address) and port are necessary to direct a packet to its destination.

13. Python program can always use a socket’s (getsockname();getsockname) method to retrieve a tuple that contains the current IP address and port to which the socket is bound.

14. It is of the (SOCK\_DGRAM;sock\_dgram) datagram type, which means it will use UDP on an IP network.

15. After a UDP client calls the function connect(), one can capture (0) packets by wireshark.

16. A solution that allows several conversations to share a medium or mechanism is known as a (multiplexing) scheme.

17. The operating system uses integers to identify sockets, but Python instead returns a more convenient (socket.socket) object to your Python code.

18. A call that waits for a network operation to complete is said to (block) the caller.

19. (Encoding;encoding) is the process of taking character strings that you are ready to present to the outside world and turning them into bytes.

20. The (source port) identifies the particular process or program that sent the packet from the source machine.

## **作业三 “网络数据与网络架构”**

1. A byte is the smallest unit of information.（错）

2. Each hex digit corresponds to four bits, so each pair of hex digits represents a byte of data.（对）

3. The python library "struct" provides a variety of operations for converting data to and from popular binary formats.（对）

4. socket.gaierror: this exception is raised when getaddrinfo() cannot find a name or service about which you ask.（对）

5. HTTP protocol only contains one framing technique.（错）

6. Using compression before transmission can not reduce the user's waiting time.（错）

7. Prefixing each message with its length is a popular choice for high-performance protocols.（对）

8. JSON is not among the best choices available today for sending data between different computer languages.（错）

9. In ASCII, codes 0 through 31 represent control commands for an output display.（对）

10. Decoding byte data means converting a byte string into real characters.（对）

11. The blanket approach to exceptions is to wrap a try...except clause around every single network call.（错）

12. Computers based on ubiquitous x86 architecture are normally “big-endian”.（错）

13. The function 'chr(obj)' can convert an object obj to a string.（错）

14. In Python, “pickle” is the native form of serialization that comes with the Standard Library.（对）

## **作业四 “服务器架构”填空题**

1. The approach that scales best in the industry today is to place your services behind a (load balancer;Load balancer).

2. A dictionary of sockets is maintained so that when (poll();poll) tells you that file descriptor n is ready for more activity, you can find the corresponding Python socket.

3. To protect the server from other people on your LAN or network, specify the standard (local host;localhost;Local host;Localhost;127.0.0.1) IP address.

4. The new asyncio module is specific to Python (3;three;Three).

5. There are several calls by which operating systems support asynchronous mode. The oldest is the POSIX call (select();select).

6. Single-threaded server in Chapter 2 or 3 probably keeps the system CPU almost entirely (idle;IDLE;Idle).

7. The poll() call now notifies you immediately with (POLLOUT;pollout) whenever the outgoing buffers on the client socket can accept at least one byte.

8. The way of running your Python server code on a physical or virtual machine is called (deployment;Deployment).

9. If the server author gets clever and tries setting a timeout with (sock.settimeout();sock.settimeout;settimeout;settimeout()) to avoid waiting forever, then adjust your denial-of-service tool.

10. The rich set of (utilities;Utilities) provided in the zen\_utils module of Listing 7-1 reduces the task of writing a simple single-threaded server.

11. The disadvantage of Threaded and Multiprocess Servers is that the number of clients to which you can talk is limited by how your operating system (concurrency mechanisms scale).

12. The weakness of this single-threaded design is apparent the moment that a second client tries to connect while the server is still (in conversation).

13. The other means of constructing protocol code for the asyncio framework is to construct a (coroutine), which is a function that pauses when it wants to perform I/O.

14. Instead of (blocking;waiting) for data to arrive or depart from one particular client, the asynchronous code instead is willing to hear from a whole list of waiting client sockets and respond whenever one of those clients is ready for more interaction.

15. A switch from threading.Thread to (multiprocessing.Process;multiprocessing.process) would give each thread of control its own separate memory image and file descriptor space, increasing expense from an operating system point of view.