

Indian Air Force EC Electronic And Communication Question Paper 2011 Engineering Knowledge Test (EKT)

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(EKT) ELECTRONICS AND COMMUNICATIONS

1. In a communication system, noise is most likely to get into the system

- (A) at the transmitter
- (B) in the channel
- (C) in the information source
- (D) at the destination

2. When modulation frequency is doubled, the modulation index is halved, and the modulating voltage remains constant, the modulation system is

- (A) amplitude modulation
- (B) phase modulation
- (C) frequency modulation
- (D) angle modulation

3. Impedance inversion may be obtained with

- (A) a short - circuited stub
- (B) an open - circuited stub
- (C) a quarter - wave line
- (D) a half - wave line

4. HIGH frequency waves are

- (A) observed by the F2 layer
- (B) reflected by D layer
- (C) capable of use for long-distance communication on the moon
- (D) affected by the solar cycle

5. Which one of the following terms does not apply to the Yagi-uda array

- (A) Good band width
- (B) Parasitic elements
- (C) Folded dipole
- (D) High gain

6. A duplexer is used

- (A) to couple two different antennae to a transmitter without mutual interference
- (B) to allow one antenna to be used for reception or transmission without mutual interference
- (C) to prevent interference between two antennae when they are connected to receiver
- (D) to increase the speed of the pulses in pulsed radar

7. Indicate which of the following system is digital

- (A) Pulse - Position modulation
- (B) Pulse - Code modulation
- (C) Pulse - Width modulation
- (D) Pulse - Frequency modulation

8. A forward error correcting code corrects errors only

- (A) requiring partial retransmission of the signal
- (B) requiring retransmission of entire signal

- (C) using parity to correct to errors in all cases
- (D) requiring no part of the signal to be transmitted

9. A typical signal strength received from a geosynchronous communication satellite is of the order of

- (A) a few milli watts
- (B) kilo watts
- (C) watts
- (D) few pico watts

10. Telephone traffic is measured

- (A) with echo cancellers
- (B) by the relative congestion
- (C) in terms of the grade of service
- (D) in erlangs

11. Positive logic in a logic circuit is one in which

- (A) logic 0 and 1 are represented by 0 and positive voltage respectively
- (B) logic 0 and 1 are represented by negative and positive voltages respectively
- (C) logic 0 voltage level is higher than logic 1 voltage level
- (D) logic 0 voltage level is lower than logic 1 voltage level

12. A half-adder can be made from

- (A) two NAND gates
- (B) a NOT gate and an OR gate
- (C) an AND gate and an OR gate
- (D) an AND gate and an X-OR gate

13. Which of the following devices has its characteristics very close to that of an ideal current source.

- (A) Field effect transistor
- (B) Transistor in common base mode
- (C) Zener diode
- (D) MOSFET

14. The main use of a common base transistor amplifier is

- (A) as voltage amplifier
- (B) current amplifier
- (C) for matching a high source impedance to a low load impedance
- (D) for rectification of a.c. signal

15. A class-B amplifier is biased

- (A) Just at cut-off
- (B) nearly twice cut-off
- (C) at mid point of load line
- (D) so that I_B equals I_{C1}

16. If the peak transmitted power in a radar system is increased by a factor of 16, the maximum range will be increased by a factor of

- (A) 2 (B) 4 (C) 8 (D) 16

17. A high PRF will (indicate the false statement)

- (A) make the returned echoes easier to distinguish from noise
- (B) make target tracking easier with conical scanning
- (C) increase the maximum range
- (D) have no effect of the range resolution

18. A solution to the "blind speed" problem in a radar system is to

- (A) change the Doppler frequency
- (B) vary the PRF
- (C) use mono pulse
- (D) use MTI

19. The number of active picture elements in a television image depends on

- (A) fly back time
- (B) CRT screen size
- (C) received band width
- (D) FB ratio of receiver antenna

20. In a colour TV, the three primary colours are

- (A) red, orange and blue
- (B) red, blue and green
- (C) red, green and yellow
- (D) red, orange and green

PART B-5 AE (L): COMPUTER ENGINEERING

1. A logic gate is an electronic circuit which

- (A) makes logic decision
- (B) allows electron flow only in one direction
- (C) works on binary algebra
- (D) alternates between 0 and 1 values

2. NAND and NOR gates are called 'universal' gates primarily because they

- (A) are available everywhere
- (B) are widely used in IC packages
- (C) can be combined to produce AND, OR and NOT gates
- (D) are the easiest to manufacture

3. The ascending order of a data hierarchy is:

- (A) bit-byte-record-field-file-data base
- (B) byte-bit-field-record-file
- (C) byte-bit-record-field-file-data base
- (D) bit-byte-field-record -file-data base

4. A dumb terminal can do nothing more than communicate data to and from a CPU of a computer. How does a 'smart' terminal differ from dumb terminal

- (A) it has a primary memory
- (B) it has a cache memory
- (C) it has a micro processor
- (D) it has an input device

5. The main distinguishing features of fifth generation digital computer will be

- (A) liberal use of micro processors

- (B) artificial intelligence
- (C) extremely low cost
- (D) versatility

6. Which of the following terms is not used to refer to the recording density of a disk

- (A) mega-density
- (B) single-density
- (C) double-density
- (D) quad-density

7. The two kinds of main memory are

- (A) primary and secondary
- (B) random and sequential
- (C) ROM and RAM
- (D) central and peripheral

8. Which one of the following is not an octal number

- (A) 29
- (B) 75
- (C) 16
- (D) 102

9. Main problem with LCDs is that they are very difficult to read

- (A) directly
- (B) in bright light
- (C) in dull light
- (D) both (B) and (C)

10. Both computer instructions and memory addresses are represented by

- (A) character codes
- (B) binary codes
- (C) binary word
- (D) parity bit

11. A computer program that converts an entire program into machine language at one time is called a/an

- (A) interpreter
- (B) simulator
- (C) compiler
- (D) commander

12. All the keys on the IBM PC key board repeat as long as we hold them down. Such type of keys are known as

- (A) typematic keys
- (B) functional keys
- (C) automatic keys
- (D) alphabetic keys

13. What does the acronym ISDN stands for

- (A) Indian Standard Digital Network
- (B) Integrated Services Digital Network
- (C) Intelligent Service Digital Network
- (D) Integrated Services Data Network

14. Two basic types of operating system are

- (A) sequential and direct
- (B) batch and time sharing
- (C) direct and interactive
- (D) batch and interactive

15. Which of the following entity does not belong to word processing

- (A) characters (B) words
- (C) cells (D) paragraphs

16. A schema describes

- (A) data elements
- (B) records and filer
- (C) record relationship
- (D) all of the above

17. Which of the following is not a tool used to manage and control schedule performance

- (A) CAD (B) PERT
- (C) CPM (D) Gantt Chart

18. An expert system differs from a data base program in that only an expert system

- (A) contains declarative knowledge
- (B) contains procedural knowledge
- (C) features the retrieval of stored information
- (D) experts users to draw own conclusion

19. The virtual memory addressing capability of 80386 is

- (A) 4 GB (B) 16 GB
- (C) 64 GB (D) 64 TB

20. The 80486 microprocessor from Intel consists of

- (A) a fast 32 bit CPU but no coprocessor
- (B) a 32 bit CPU and an 80387 coprocessor only
- (C) a 32 bit CPU, a 80387 coprocessor and memory management unit (MMU) only
- (D) a 32 bit CPU, a 80387 coprocessor, memory management unit and a cache me