



# **SAMPLE PAPER ASSISTANT DIRECTOR E&M**

## VERBAL

### Read the passage to answer question 1-4

Since the 1980s, the biggest influence on business has been electronic technology.

Computers are being used for inventory control, sales analysis and forecasting, distribution control, and budget analysis. At-home electronic shopping is becoming commonplace. With this system, consumers view merchandise on a computer monitor and then use a modem, which links the computer to a telephone line, to signal the goods they want to order. Just as traveling salesman once brought wares to the home, electronic technology makes it possible for modern consumers to see and select from any array of goods in their homes.

1. The word "forecasting" is closest in meaning to:

- A. prediction
- B. efficiency
- C. accounting
- D. decision making

2. The word "modem" refers to a type of:

- A. electronic shopping
- B. electronic device
- C. telephone
- D. computer screen

3. The word "wares" is closest in meaning to:

- A. clothing
- B. items for sale
- C. messages
- D. household appliances

4. The word "array" is closest in meaning to:

- A. pair
- B. container
- C. category
- D. collection

**Each of the following questions consists of a sentence with all or part of the sentence underlined. Following the requirements of standard written English, select (A) if the original is best; otherwise choose the best phrase from the options.**

5. Neither the boys nor their teacher are responsible for causing the situation.

- A. Neither the boys nor their teacher are
- B. Neither the boys nor their teacher is
- C. Neither the boys or their teacher are
- D. Neither the boys or their teacher is
- E. Neither the boys nor their teacher is

**Complete the sentences by choosing the most appropriate option, from the given lettered choices (A to D) below each.**

6. Earthquakes cause vibrations to pass \_\_\_\_\_ around the earth in wave form.

- A. through
- B. through the
- C. through an
- D. through and

## ANALYTICAL REASONING

According to Albert Einstein's famous theory of relativity, time travel is theoretically possible. Assuming that time travel were to be made possible through some technological breakthrough, it would be advantageous to send someone back in time to prevent the assassination of Archduke Franz Ferdinand in 1914 and thus keep World War I from ever occurring.

7. The argument above makes which of the following assumptions?
- A. It is not possible to alter a significant current in world history merely by changing a single event
  - B. The technology necessary for time travel is likely to be developed in the near future
  - C. If Franz Ferdinand had not been assassinated, some other catalytic event would have led to the start of World War I
  - D. The assassination of Franz Ferdinand was the crucial event that triggered the start of World War I
  - E. If time travel were to be developed in the future, evidence of time travelers would be apparent to those living today

### Questions 08-13

In a telecommunications-cable assembly plant, cables are assembled by twisting plastic-coated wires together. There are wires of exactly six different solid colors red, yellow, violet, green, white, and black. Wires must be assembled into single cables according to the following rules:

Each cable must contain at least three wires and wires of at least three different colors.

At most two wires in a single cable can be black.

At most two wires in a single cable can be white.

There can be at most one wire of each of the other colors in a single cable.

If one wire is red, then one wire must be yellow.

If one wire is violet, then no wire can be green.

8. Which of the following could be the-complete set of wires in an acceptable cable?
- A. A green wire, a white wire, and a violet wire
  - B. A violet wire, a black wire, and a white wire
  - C. A red wire, a black wire, and a green wire
  - D. A yellow wire and exactly two black wires
  - E. Exactly two black wires and exactly two white wires
9. The maximum number of wires that can be used in an acceptable cable is
- A. 8
  - B. 7
  - C. 6
  - D. 5
  - E. 4

10. If exactly one black wire and exactly one white wire are used in an assembled cable, which of the following must be true?
- A. The cable contains no more than five wires
  - B. The cable contains exactly six wires
  - C. The cable contains a yellow wire
  - D. The cable does not contain a red wire
  - E. The cable does not contain a violet wire
11. If a white wire and a violet wire must be among the wires chosen for a particular cable, any of the following pairs of wires could complete the cable EXCEPT a:
- A. black wire and a second white wire
  - B. yellow wire and a second white wire
  - C. yellow wire and a black wire
  - D. red wire and a yellow wire
  - E. red wire and a black wire
12. If an assembled cable consists of exactly five wires, each a different color, it could be true that a color NOT used is
- A. black
  - B. white
  - C. green
  - D. red
  - E. yellow
13. If there is an additional requirement that violet must be used if yellow is used, which of the following must be true?
- A. No cable contains fewer than six wires
  - B. No cable contains more than five wires
  - C. Green is never used if red is used
  - D. Red is always used if violet is used
  - E. Black is used exactly once if yellow is used

**SUBJECT**

14. Which one of the following is NOT an unconventional source of energy?

- A. Tidal power
- B. Geothermal energy
- C. Wind power
- D. Nuclear energy

15. Which engine has the highest air fuel ratio?

- A. Petrol engine
- B. Gas turbine
- C. Gas engine
- D. Diesel engine

16. A 220V DC shunt motor takes a total current of 80A and runs at 800 rpm. Resistance of shunt field is  $50\Omega$  and that of armature is  $0.1\Omega$ . The iron and friction losses amount to 1600W. What is the driving power of the motor?

- A. 16060 W
- B. 14150 W
- C. 12050 W
- D. 18260 W

17. Unit of potential is:

- A. Ampere
- B. Ohm
- C. Mega ohm
- D. Volt

18. Drop out to cutoff ratio for most relays is of the order of:

- A. 0.2 to 0.3
- B. 0.3 to 0.4
- C. 0.4 to 0.6
- D. 0.6 to 1.0

19. A physical or imaginary surface, enveloping the system and separating it from the surroundings is called as \_\_\_\_\_.

- A. Boundary
- B. Surrounding
- C. System
- D. Virtual surface

20. The most commonly used facings are made of cotton and \_\_\_\_\_ fibers woven or molded together and impregnated with resins or similar binding agents.

- A. Kevlar
- B. Resin
- C. Asbestos
- D. Copper

21. Heat exchangers can be \_\_\_\_\_, counter flow or cross flow.

- A. Horizontal flow
- B. Parallel flow
- C. Vertical flow
- D. Double flow

22. When a viscous fluid flows along a fixed impermeable wall, or past the rigid surface of an immersed body, an essential condition is that the velocity at any point on the wall or other fixed surface is \_\_\_\_\_.

- A. Negative
- B. Maximum
- C. Zero
- D. Minimum

23. When the vehicle is equipped with an automatic transmission, the flywheel serves to support the front of the \_\_\_\_\_.

- A. Differential
- B. Torque converter
- C. Clutch
- D. Gearbox

## ANSWER KEY

Q #.	Right Choice
1	A
2	B
3	B
4	D
5	B
6	D
7	D
8	B
9	B
10	A
11	E
12	C
13	C
14	D
15	B
16	A
17	D
18	D
19	A
20	C
21	B
22	C
23	B