

**GEOGRAPHIC INFORMATION SYSTEMS
GEOGRAPHIC INFORMATION CENTER
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***** EXAMINATION *****

DESIGN AND DEVELOPMENT OF AN UP-LINK ENVIRONMENTAL MONITOR

1. **Two units designed to fulfill the requirements of the program:**
 - a) are the Uplink Actuator Receiver and the Monitor Display
 - b) are the Uplink Display and the Monitor Actuator Receiver
 - c) are the Uplink Actuator Display and the Monitor Receiver
 - d) none of the above

2. **Two basic functions to facilitate system operation are**
 - a) performed by the Monitor Display
 - b) performed by the Uplink Actuator Receiver
 - c) performed by the Uplink Actuator Display
 - d) performed by the Monitor Receiver

3. **The input sensitivity of the receiver was chosen to be:**
 - a) 5 microvolts
 - b) 10 microvolts
 - c) 15 microvolts
 - d) 20 microvolts

4. **The Uplink Actuator Receiver was designed for over:**
 - a) 50 dB of dynamic range
 - b) 60 dB of dynamic range
 - c) 70 dB of dynamic range
 - d) 80 dB of dynamic range

5. **This receiver was designed to operate from:**
 - a) 0 degrees to +40 degrees Celsius
 - b) -5 degrees to +45 degrees Celsius
 - c) -10 degrees to +50 degrees Celsius
 - d) -15 degrees to +60 degrees Celsius

6. **These receivers reject Out-of-band signals by the:**
 - a) 690 Hz bandpass filter
 - b) 790 Hz bandpass filter
 - c) 890 Hz bandpass filter
 - d) 990 Hz bandpass filter

7. **If the signal strength exceeds a pre-set threshold,**
 - a) the signaling line goes high
 - b) the signaling line goes low
 - c) the signal is blocked
 - d) none of the above

8. **The Receiver Selectivity specifications for the Receiver:**
 - a) is 10 dB rejection at 940 and 1000 Hz
 - b) is 20 dB rejection at 960 and 1020 Hz
 - c) is 30 dB rejection at 980 and 1040 Hz
 - d) is 40 dB rejection at 1000 and 1060 Hz

9. **The operating Voltage of the Uplink Actuator Receiver is:**
 - a) 18 to 24 volts
 - b) 20 to 26 volts
 - c) 22 to 28 volts
 - d) 24 to 30 volts

10. **The fault line in the multi-wire cable interconnects all:**
 - a) the monitor panels and the alarm panels
 - b) the monitor panels and the data panels
 - c) the data panels and the alarm panels
 - d) the data panels and the survey panels

11. **The entire Monitor Display is unlit if there are:**
 - a) two alarm conditions
 - b) three alarm conditions
 - c) four alarm conditions
 - d) no alarm conditions

12. **A normal Environmental Monitor is designed to be:**
 - a) continuously powered from a ?18V DC power source
 - b) continuously powered from a ?28V DC power source
 - c) continuously powered from a ?38V DC power source
 - d) continuously powered from a ?48V DC power source

13. **The basic Environmental Monitor indicates 2 separate:**
 - a) concentrations of methane
 - b) concentrations of carbon monoxide
 - c) concentrations of natural gas
 - d) concentrations of carbon

14. **The underground telephone normally monitors the dc level:**
 - a) on the 3-inch cable
 - b) on the steel cable
 - c) on the coaxial cable
 - d) none of the above

15. **The receiver sends encoded environmental data to the:**
- a) surface via the UFL transmitter
 - b) surface via the ULF transmitter
 - c) surface via the ULL transmitter
 - d) surface via the UFF transmitter
16. **Under normal conditions all underground phone sets are:**
- a) connected to a surface system center by a coaxial cable
 - b) connected to an underground system by a coaxial cable
 - c) connected to a surface system center by a 3 inch cable
 - d) connected to a surface system center by a steel cable
17. **The receiver section selectively monitors received signals:**
- a) to detect a loud signal
 - b) to detect an abnormal signal
 - c) to detect a triggering signal
 - d) none of the above
18. **The receiver is designed to operate in both:**
- a) deep and shallow mines
 - b) coal and gold mines
 - c) wet and dry mines
 - d) active and inactive mines
19. **The triggering signal transmission frequency was chosen**
- a) to be 790 Hz
 - b) to be 890 Hz
 - c) to be 990 Hz
 - d) to be 1090 Hz
20. **The input sensitivity of the receiver was chosen to be:**
- a) 10 microvolts
 - b) 20 microvolts
 - c) 30 microvolts
 - d) 40 microvolts

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