

EXAMINATION

(ANSWERS)

Marks

- (3) 1. The Department of Communications, the federal agency responsible for managing the Canadian air waves, has five major responsibilities. List three of its five responsibilities.
- (i) **(any three) * licensing – licenses equipment/operators**
 - (ii) *** develops (or) issues radio policies/regulations**
 - (iii) *** monitors use of radio frequencies**
*** investigates abuses (or) penalizes stations/operators for infractions**
*** assigns radio frequencies**
- (5) 2. The radio regulations that have been established by the DOC outline five major orders or rules that must be observed by all license holders and all radio operators. What do these five major orders specifically refer to?
- (i) *** interference**
 - (ii) *** superfluous (or) unnecessary transmissions**
 - (iii) *** profane (or) obscene language**
 - (iv) *** false distress signals**
 - (v) *** confidentiality**
- (1) 3. A recognized benefit of the High Frequency AM or SSB signal is its ability to bounce easily off particles in the ionosphere. This characteristic makes long distance transmission possible. For Forest Service use, what is the disadvantage of using the HF-AM/SSB signal?
- the signal can be refracted (or) misdirected (or) cannot be confined to a dedicated path***
- (2) 4. There are many benefits to using FM. As a result, FM has become the Ministry of Forests' communications standard. What is the negative characteristic of the FM ground wave?
- A statement containing any, or all, of the information included in the following three points:*
- it is easily obstructed/reflected by topography***
 - it will not penetrate mountainous or hilly terrain***
 - it is "line-of-sight" and will not transmit over long distances***
- (2) 5. FM radio offers fire suppression personnel many advantages over SSB radio. What is a recognized benefit of using FM radio equipment in suppression communications?
- Any one, or combination, of the following:*
- more than one group of radio units can use the same frequency in generally the same area***
 - almost total immunity from man-made noise and atmospheric changes (or) consistent and reliable communications***
 - antennas used with FM radios are smaller and more convenient to use in the field***

Marks

- (2) 6. All radios are identified by a Call Sign. When a Crew Boss is transmitting from the field what is he expected to use as his Call Sign, so that he, his crew and his radio can be identified?
his surname
- (2) 7. Call Signs are extremely important and are used to identify stations, portables and mobiles. In what two instances is the Call Sign always used?
(i) * *when initial contact is established (beginning of transmission)*
(ii) * *when communication is concluded (end of the transmission)*
- (6) 8. The International Telecommunications Union has established three emergency communications levels, or signals, that are understood worldwide. Identify the term used for each level and briefly outline the type of emergency situation they are intended to be used for.
- Term: **MAYDAY**
Emergency: *used when there is a threat to life (or) grave and imminent danger (or) immediate emergency*
- Term: **PANPAN**
Emergency: *used when there is jeopardy to life and some urgency is requested (will/could develop into a MAYDAY)*
- Term: **SECURITY/SAYCURITAY**
Emergency: *used to transmit safety warnings (or) road alerts (or) weather warnings*
- (1) 9. If other stations are interfering with a distress transmission, what expression will the station in distress use to stop all other communications traffic?
“SILENCE MAYDAY” (or) “SEELONCE MAYDAY”
- (1) 10. When spelling with the phonetic alphabet, the operator will always preface the transmission with what statement?
“I spell”
- (1) 11. What type of antenna is commonly used with Hand-Held Portable Radios?
the Rubber Ducky
- (1) 12. For best results, where should the antenna of a mobile radio be mounted?
in the middle of the vehicle roof
- (1) 13. If the FM signal is largely limited to “line-of-sight” paths, how is it possible to use a low-powered FM portable radio to talk to another portable on the other side of the mountain?
by using a repeater

Marks

- (2) **14.** What radio feature, for safety reasons, should never be used when traveling an industrial road and why?
- (i) *** the scanner**
 - (ii) *** because the driver may, while listening to another frequency, fail to hear road alerts transmitted about the industrial road being traveled – the driver's personal safety is in jeopardy**
- (1) **15.** Which mobile radio (described in the text and common to the Forest Service) is available in front-mount, remote-mount, floor-mount and base station mount?
- the MCX 100**
- (1) **16.** What is the purpose of the squelch control?
- it eliminates internal noise or interference in the radio**
- (2) **17.** If the operator turns the squelch control past the “cut-off” point, how is the radio negatively affected?
- the radio's receiver is rendered inoperative (or) incoming calls will not be received**
- (1) **18.** When an operator is transmitting a radio message, what distance from the mouth is it recommended that the mouth piece/microphone be held?
- 3-5 cm. (or) 1-2 in. (any indication that the trainee recognizes the microphone should be held close to the mouth/lips)**
- (6) **19.** Radios should always be checked before taking them into the field. If your radio did not work, what three areas would you immediately check and why?
- (i) **the channel**
to make sure the radio is on the correct channel (or) within range of the receiving/transmitting station
 - (ii) **the antenna**
to make sure the antenna is not broken and is tightly secure
 - (iii) **the batteries**
to make sure the batteries are not low or depleted
- (3) **20.** When transmitting a message, mode of speaking is very important. In order to ensure your message is being accurately received, what three speaking techniques should you be aware of?
- (i) **clarity (or) speaking plainly (or) speaking clearly**
 - (ii) **speed (or) speaking constant and smoothly (or) speaking neither too fast nor too slow**
 - (iii) **rhythm (or) maintaining the rhythm of normal conversation (or) staying calm and avoiding unnecessary sounds such as “er” and “um”**

Marks

- (1) **21.** The Ministry uses many VHF and UHF signals and when allocating frequencies, care is taken to minimize “overlap”. When does overlap occur?
when stations in adjacent districts or regions attempt to use the same channel at the same time (or) when channels are being shared with other services and are used at the same time

CIRCLE EITHER TRUE OR FALSE

- (1) **22.** The PTT button is pushed to transmit and is released to receive. ☒ T ☐ F
- (1) **23.** The Handi-Talkie and the Lunch Box radio are actually the same radio unit. ☐ T ☒ F
- (1) **24.** The SBX-11, because it operates in the HF bands, is capable of long-range “skip” communications. ☒ T ☐ F
- (1) **25.** The High Gain and the Ground Plane antenna are both used with Forest Service mobiles. ☐ T ☒ F
- (1) **26.** Most mobile radios run off the vehicle’s 12-volt battery. ☒ T ☐ F
- (1) **27.** Base stations are portable radios, compact and easy to use and relocate in the field. ☐ T ☒ F
- (1) **28.** The Lunch Box Portable radio can also be used as a Base Station. ☒ T ☐ F
- (1) **29.** All Forest Service Repeaters are portable. ☐ T ☒ F
- (1) **30.** A base station is included with the Type B Repeater kit. ☒ T ☐ F
- (1) **31.** On a large fire, several crews (with each Crew Boss having a radio) are dispatched. ☒ T ☐ F

Marks

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| (1) | 32. It is necessary to identify your station at the beginning of the transmission, but not at the end. | T | F |
| (1) | 33. A feature of the repeater is its multi-frequency capabilities. | T | F |
| (1) | 34. AM is the Forest Service standard used for communications on the fireline. | T | F |
| (1) | 35. SSB, skip communications, is used for long distance land communications. | T | F |
| (1) | 36. When transmitting MAYDAY, the word MAYDAY is always repeated three times. | T | F |
| (1) | 37. Jamming describes the confusion of radio signals caused by stray radio waves. | T | F |
| (1) | 38. A Repeater is actually both a transmitter and a receiver. | T | F |
| (1) | 39. All radio licenses are issued by the Ministry of Forests. | T | F |
| (1) | 40. SSB is superior to AM and is used for land communications. | T | F |
| (1) | 41. The Forest Service uses both AM and FM for aircraft communications. | T | F |
| (15) | 42. Spell out the following words using the Phonetic Alphabet. | | |
| | (i) "Horsefly" is transmitted as:
Hotel, Oscar, Romeo, Sierra, Echo, Foxtrot, Lima, Yankee (8 marks) | | |
| | (ii) "Gun" is transmitted as:
Golf, Uniform, November (3 marks) | | |
| | (iii) "Wick" is transmitted as:
Whiskey, India, Charlie, Kilo (4 marks) | | |

(10) **43.** Below is a list of standard terms and phrases developed for radio communications and which operators are expected to use. Briefly define each term.

(i) Acknowledge:

Let me know that you have received and understand this message

(ii) Affirmative:

Yes (or) permission granted (or) I agree

(iii) How do you read:

Do you hear me (or) shall I transmit my message

(iv) Negative:

No (or) permission not granted (or) that is not correct (or) I do not agree

(v) Wilco:

Your instructions received, understood, and will be complied with

(vi) Over:

My transmission is ended and a response is expected

(vii) Out:

Conversation is ended and no response is expected

(viii) Roger:

I have received all of your last transmission

(ix) Words twice:

Communication is difficult, please send each word twice (N.B. does not mean "repeat" or "say again")

(x) That is correct:

Correct (or) right (or) you have understood accurately

Marks

- (10) 44. Match the term on the left with the corresponding statement or definition on the right by placing the letter in the corresponding blank space.
Example:

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| A. | Electromagnetic Wave | <u> B </u> | The carrier wave conveys no intelligence unless it is |
| B. | Modulated | <u> A </u> | Naturally radiated energy |

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- | | | | |
|----|---------------|--------------|---|
| A. | DOC | <u> I </u> | An omnidirectional antenna |
| B. | SSB | <u> H </u> | Allows selected (or) priority channels to be received without loss of message |
| C. | Hertz | <u> G </u> | This radio takes nine batteries inserted into three plastic tubes |
| D. | High Grain | <u> F </u> | This mode of transmission is referred to as "Line-of-Sight" |
| E. | Dipole | <u> J </u> | Directional or beam antenna |
| F. | FM | <u> B </u> | Is a by-product and superior to AM radio |
| G. | SBX-11 | <u> A </u> | Licenses the Ministry of Forests to carry out Forest Service business |
| H. | Scan Sequence | <u> D </u> | VHF mobile radio antenna |
| I. | Ground Plane | <u> E </u> | HF portable radio antenna commonly used with the SBX-11 radio |
| J. | Yagi | <u> C </u> | One complete cycle per second |

Total marks **100**