

HEALTH LEVEL SEVEN

SAMPLE CERTIFICATION TEST

HL7 2.7 STANDARD

CHAPTER 2, 2A, 2B – CONTROL

Name: _____ ID: _____

Instructions

Put the following version number on your answer sheet: Sample Test.

1. **The original mode acknowledgment protocol is equivalent to the enhanced acknowledgment protocol with which of the following field values?**
 - A. Just the MSH-15-accept acknowledgment type equal to "AL", the MSH-16-application acknowledgment type doesn't matter.
 - B. Just the MSH-16-application acknowledgment type equal to "AL", the MSH-15-accept acknowledgment type doesn't matter.
 - C. The MSH-15-accept acknowledgment type equal to "NE" and the MSH-16-application acknowledgment type equal to "AL".
 - D. The MSH-15-accept acknowledgment type equal to "AL" and the MSH-16-application acknowledgment type equal to "NE".
 - E. The MSH-15-accept acknowledgment type equal to "NE", the MSH-16-application acknowledgment type doesn't matter.

2. **If the component definition calls for a component to be broken into subcomponents, which of the following rules are used?**
 - I. If more than one subcomponent is included, they are separated by the subcomponent separator.
 - II. Subcomponents that are not present are represented by the characters "".
 - III. A subcomponent that is present but null is represented by including no characters in the subcomponent.
 - IV. Subcomponents that are present but null at the end of a component need not be represented by subcomponent separators.
 - A. I., II., III., and IV.
 - B. I., II., and III. only
 - C. I. and IV. only
 - D. I. only
 - E. II., III., and IV. only

3. **Which of the following is NOT a possible designation of optionality for a field within a segment in the segment attribute tables of the HL7 2.6 standard?**
 - A. R - Required
 - B. O - Optional
 - C. C - Conditional on the trigger event or on some other field(s)
 - D. Z - User defined
 - E. B - Left in for Backward compatibility with previous versions of HL7

4. **If the field definition calls for a field to be broken into components, which of the following rules are used:**
 - I. If more than one component is included, they are separated by the component separator.
 - II. Components that are present but null are represented by the characters "".

- III. A component that is not present is indicated by including no characters in the component.
- IV. Components that are not present at the end of a field must be represented by component separators.

- A. I., II., III., and IV
- B. I., II., and III. only
- C. I., II., and IV. only
- D. I., III., and IV. only
- E. II., III., and IV. Only

5. **Given the following abstract message definition:**

```

MSH Message Header
MSA Message Acknowledgment
[ { WDN Widget Description
  { WPN Widget Portion }
  [ WPD Widget Portion Detail ]
  }
]

```

Which of the following ordered segments in a message would be ILLEGAL?

- A. MSH MSA
- B. MSH MSA WDN WPN WPN WPD WDN
- C. MSH MSA WDN WPN WPN
- D. MSH MSA WDN WPN WDN WPN WDN WPN
- E. MSH MSA WDN WPN WPN WPD WDN WPN WPN WPD

6. **The segment FHS contains which of the following fields?**

- A. Batch Creation Date/Time
- B. Batch Control ID
- C. File Batch Count
- D. File Encoding Characters
- E. File Trailer Comment

7. **A DSC continuation pointer segment could be used to continue which of the following messages?**

- I. QRY/DSR - original mode display query - immediate response (event Q01)
- II. QRY/QCK - deferred query (event Q02)
- III. DSR/ACK - deferred response to a query (event Q03)
- IV. ADT/ACK - register a patient (event A04)
- V. UDM/ACK - unsolicited display update message (event Q05)

- A. I., II., III., IV., and V.
- B. I, II., III., and V. only
- C. I., II., and III., only
- D. I. and II. only
- E. V. only

8. Which of the following characters is the suggested HL7 2.x Field Separator?

- A. |
- B. ^
- C. &
- D. ~
- E. \

9. What data type is the following field?

1. The cardiomediastinal silhouette is now within normal limits.
2. Lung fields show minimal ground glass appearance.
3. A loop of colon visible in the left upper quadrant is distinctly abnormal with the appearance of mucosal effacement suggesting colitis.

- A. HT - Hypertext Markup Language
- B. FT - Formatted text
- C. RT - Rich Text
- D. TX - Text Data
- E. XM - Extended Markup Language

10. Which of the following are allowed in future 2.x versions of HL7:

- I. New messages.
 - II. New segments.
 - III. New fields.
 - IV. New components.
- A. I., II., III., and IV.
 - B. I., II. and III. only
 - C. I., II., and IV. only
 - D. I., III., and IV. only
 - E. II., III., and IV. only

11. Which of the following is NOT an example of an HL7 2.7 trigger event?

- A. Delete Person Information.
- B. Application Acknowledgment.
- C. Query sent for deferred response.
- D. Swap Patients.
- E. Unsolicited transmission of an observation message.

12. Given the following abstract message definition:

```
MSH Message Header
MSA Message Acknowledgment
[ { PID Patient Identification
  [ { WDN Widget Description
    { WPN Widget Portion }
    [ WPD Widget Portion Detail ]
  }
]
}
]
```

Which of the following ordered segments in a message would be ILLEGAL?

- A. MSH MSA PID
- B. MSH MSA PID WDN WPN WPD PID PID PID
- C. MSH MSA PID WDN WPN WDN WPN WPN WPD
- D. MSH MSA PID WDN WPN WDN WPN WPD
- E. MSH MSA PID WDN WPN WPD WPD WDN WPN

13. If the default encoding characters are being used, and a text field is being encoded whose content is the string "John & Mary", which of the following statements are true?

- I. The "&" must be encoded with an escape sequence.
 - II. The "&" must be stripped from the string before encoding.
 - III. The "&" must be encoded with Base64 encoding.
 - IV. The "&" must be encoded with "\T\" if the suggested encoding characters are being used.
 - V. The "&" must be encoded with "\A\" if the suggested encoding characters are being used.
- A. I. and III. only
 - B. I. and IV. only
 - C. I. and V. only
 - D. II. only
 - E. III. only

14. Which of the following statements about message construction using standard HL7 encoding rules are true?

- I. Segments must be constructed in the order defined for the message.
 - II. The first three characters of each Segment must be the segment ID code.
 - III. The final segment does not need to end with the Segment Terminator.
 - IV. The MSH can redefine the Segment Terminator.
- A. I., II., and III. only
 - B. I., II., and IV. only
 - C. I. and II. only
 - D. I. and IV. only
 - E. II., III., and IV. only

15. Which of the following statements is NOT true regarding the HL7 ID number in segment attribute tables?

- A. It is a user defined field.
- B. It uniquely identifies the data field within the segment.
- C. It is also known as Item #.
- D. It can be used in the RCD (Row Column Definition) Segment of HL7 queries to identify the data element.
- E. It is a small integer (nnnnn).

16. Which of the following statements are true regarding the HL7 2.x data type Hierarchic Designator (HD)?

- I. The HD enables the transmission of information for any site to act as an assigning authority (on a local or user-defined basis), even if it technically does not have the right to issue new IDs within an identification scheme.
 - II. HDs which have defined third components (defined UID types) must contain a value in the second component that is unique within the series of ID's defined by the third component.
 - III. Data type HD is interchangeable with data type CWE (Coded With Exceptions).
- A. I., II., and III.
 - B. I. and II. only
 - C. I. and III. only
 - D. II. and III. only
 - E. I. only

17. Which of the following statements are true?

- I. The suggested HL7 2.x Repetition Separator character is "~"
 - II. The suggested HL7 2.x Component Separator character is "|"
 - III. The Escape Character cannot be redefined by the Message Header Segment.
- A. I., II., and III.
 - B. I. and II. only
 - C. I. and III. only
 - D. II. and III. only
 - E. I. only

18. What is the specified maximum field length for a field of data type IS?

- A. 20
- B. 64
- C. 199
- D. 65536 (64K)
- E. The maximum length may vary depending on the longest code in the code set.

19. Which of the following rules apply to receiving HL7 messages and converting their contents to data values?

- I. Ignore segments, fields, components, subcomponents, and extra repetitions of a field that are present but were not expected.
 - II. Treat segments that were expected but are not present as consisting entirely of fields that are present but null.
 - III. Treat fields and components that are expected but were not included in a segment as not present.
- A. I., II., and III.
 - B. I. and II. Only
 - C. I. and III. only
 - D. II. and III. only
 - E. I. only

20. Which of the following rules apply to receiving HL7 messages and converting their contents to data values:

- I. The receiving system must return an error acknowledgment for segments, fields, components, subcomponents, and extra repetitions of a field that are present but were not expected.
- II. The receiving system must treat segments that were expected but are not present as consisting entirely of fields that are not present.
- III. The receiving system must treat fields valued with two double quotes [""] as not present.
- IV. The receiving system must treat fields and components that are expected but were not included in a segment as present but null.

- A. I., II., and III. only
- B. I., II., and IV. only
- C. I. and II. only
- D. I. only
- E. II. only

21. Which of the following is not a component of the HD data type?

- A. Name of Coding System.
- B. Namespace ID.
- C. Universal ID.
- D. Universal ID type.
- E. None of the above. All of the above are components of the HD data type.

22. An EKG waveform image could be encoded in which of the following HL7 2.7 data types?

- A. CD - Channel definition
- B. CM - Composite
- C. ED - Encapsulated data
- D. EK - Electrocardiogram
- E. MA - Multiplexed array

23. Which of the following capabilities does the HL7 2.7 standard assume that the communications environment will provide?

- I. Ethernet network.
- II. IP addressing of the sending and receiving sites.
- III. Character conversion if the two machines exchanging data use different character sets.

- A. I., II., and III.
- B. I. and II. only
- C. II. and III. only
- D. III. only
- E. None. HL7 2.6 does not assume that the communications environment will provide any of these capabilities.

24. What acknowledgment code should a system return as an accept acknowledgment if the message cannot be accepted because of a sequence number error?

- A. CA
- B. CR
- C. CE
- D. CX
- E. None of the above.

25. Which of the following statements are true?

- I. A DICOM image could be transmitted in an element of the ED (Encapsulated Data) data type.
 - II. A value of type HD (Hierarchic Designator) could contain, as one of its components, a DICOM image.
 - III. A DICOM image could be transmitted in an element of the CD (Channel Definition) data type.
- A. I., II., and III.
 - B. I. and II. only
 - C. I. and III. only
 - D. II. and III. only
 - E. I. only

26. What data type is the following field? |^100^-^200|

- A. CQ - Composite quantity with units
- B. NM - Numeric
- C. SI - Sequence ID
- D. SN - Structured numeric
- E. None of the above.

27. Which of the following statements about HL7 2.x message construction are true?

- A. Segments may repeat within a message.
- B. Fields may repeat within a segment.
- C. Components may repeat within a field.
- D. Both A and B are true.
- E. A, B, and C are all true.

28. How does HL7 provide for the transmission of user authentication credentials, such as a Kerberos service ticket or a SAML assertion?

- A. The information should be sent in the UAC segment.
- B. The information should be sent in the EVN segment.
- C. The information should be sent in the ORC segment.
- D. The information should be sent in field MSH-8-Security.
- E. HL7 does not specify any mechanism for transmitting user authentication credentials.

29. Which of the following values for Identifier type code (the fifth component of data type CX - Extended composite ID with check digit) is part of the HL7-defined table published in the standard?
- A. Base64 - Base64 encoding as defined by MIME (Multipurpose Internet Mail Extensions) standard RFC 1521
 - B. BID - twice a day at institution-specified times (e.g., 9AM-4PM)
 - C. PI - Patient Identifier
 - D. XML - eXtended Markup Language
 - E. Z - Z Segment
30. Which of the following segments contains the field “Encoding Characters”?
- A. DSC
 - B. ERR
 - C. MSA
 - D. MSH
 - E. NTE
31. Which of the following escape sequences represents “start highlighting”?
- A. \E\
 - B. \F\
 - C. \H\
 - D. \S\
 - E. \B\

For Questions 32-35, please refer to the OBX Segment definition in Figure I below when deciding your answer.

Figure I: OBX Segment Fields

Seq	Len	DT	Usage	Cardinality	TBL#	Item #	Element Name
1	4	SI	R	[1..1]		00569	Set ID – OBX
2	2	ID	R	[1..1]	0125	00570	Value Type
3	250	CE	R	[1..1]		00571	Observation Identifier
5	65536		R	[1..1]		00573	Observation Value
6	250	CE	C	[1..1]		00574	Units
11	1	ID	R	[1..1]	0085	00579	Observation Result Status

Note: For any field not shown, assume that the Usage value is X and the Cardinality value is [0..0].

32. If Field 4, “Observation Sub-ID”, is transmitted in a segment formatted according to the OBX segment definition in Figure I above, the receiver:
- A. May accept the field but is allowed to reject it
 - B. Must accept the field (pending further processing of the field contents)
 - C. Must reject the field
 - D. Should truncate the field to a length of 250 characters
 - E. May accept the field if and only if it is accompanied by at least one occurrence of Field 3, “Observation Identifier”

33. Which of the following fields may be omitted from a segment formatted according to the OBX segment definition in Figure I above?
- A. Field 1, "Set ID - OBX"
 - B. Field 2, "Value Type"
 - C. Field 3, "Observation Identifier"
 - D. Field 5, "Observation Value"
 - E. Field 6, "Units"
34. The OBX segment definition in Figure I above is referred to in HL7 as a:
- A. Vocabulary table
 - B. Static definition – field level
 - C. Static definition – message level
 - D. Static definition – segment level
 - E. Segment attribute table
35. Assume that the HL7 default encoding and suggested delimiters are in use. Which of the following could never be a valid instance of an OBX segment formatted according to the OBX segment definition in Figure I above?
- A. OBX|1|ST|8601-7^ECG Impression^LN||Sinus rhythm, rate 60|||||F
 - B. OBX|2|NM|8625-6^PR INTERVAL^LN||109|||||F
 - C. OBX|3|NM|8633-0^QRS DURATION^LN||90|||||F
 - D. OBX|4|NM|8634-8^QT INTERVAL^LN||365|||||F
 - E. OBX|5|NM|8636-3^QT INTERVAL CORRECTED^LN||365
36. When specifying Conformance Length and Truncation Pattern, the equals sign ('=', hex 3D) is used to indicate:
- A. A field longer than the specified value must not be truncated.
 - B. '=' is used as the last character in a field to indicate it has been truncated.
 - C. The maximum length applications must store.
 - D. The minimum length applications must store.
 - E. The value that the field must be equal to in order to be conformant.

***** END OF TEST *****

Please check over your answers before turning in your test. Make sure that all your answers are accurately reflected on your answer sheet.

A passing score is 70% or more correct. For this sample exam, a score of 25 or more correct is passing. There is no penalty for guessing and no penalty for wrong answers.

Answer Key:

1. (C) The MSH-15-accept acknowledgment type equal to "NE" and the MSH-16-application acknowledgment type equal to "AL".
2. (D) I. only
3. (D) Z - User defined
4. (B) I., II., and III. only
5. (B) MSH MSA WDN WPN WPN WPD WDN
6. (D) File Encoding Characters
7. (A) I. II., III., IV., and V.
8. (A) |
9. (B) FT - Formatted text
10. (A) I., II., III., and IV.
11. (B) Application Acknowledgment.
12. (E) MSH MSA PID WDN WPN WPD WPD WDN WPN
13. (B) I. and IV. only
14. (C) I. and II. only
15. (A) It is a user defined field.
16. (B) I. and II. only.
17. (E) I. only
18. (A) 20
19. (C) I. and III. only
20. (E) II. only
21. (A) Name of Coding System.
22. (C) ED – Encapsulated data
23. (D) III.
24. (C) CE
25. (E) I. only
26. (D) SN - Structured numeric
27. (D) Both A and B are true.

28. (A) The information should be sent in the UAC segment.
29. (C) PI – Patient Identifier.
30. (D) MSH
31. (C) \H\
32. (A) May accept the field but is allowed to reject it.
33. (E) Field 6, “Units”
34. (D) Static definition – segment level
35. (E) OBX|5|NM|8636-3^QT INTERVAL CORRECTED^LN||365
36. (D) The minimum length applications must store.