

**Information & Communication Technology Model Questions****Signed number representations**

01) Represent the following decimal numbers in 8 bit binary sign magnitude.

- |           |             |           |
|-----------|-------------|-----------|
| i. 14     | ii. 17      | iii. - 14 |
| iv. -19   | v. -20      | vi. - 38  |
| vii. - 78 | viii. - 102 | ix. - 127 |

02) Represent the following decimal numbers in 8 bit binary one's complement.

- |          |            |          |
|----------|------------|----------|
| i. 9     | ii. 18     | iii. - 9 |
| iv. - 17 | v. - 20    | vi. - 29 |
| vii. -35 | viii. - 42 | ix. - 61 |

03) Represent the following decimal numbers in 8 bit binary two's complement.

- |           |            |          |
|-----------|------------|----------|
| i. 8      | ii. 21     | iii. - 8 |
| iv. - 16  | v. - 20    | vi. - 28 |
| vii. - 34 | viii. - 39 | ix. - 53 |

04) Calculate the answer using 8 bit one's complement method.

- |                  |                   |                |
|------------------|-------------------|----------------|
| i. $4 - 2$       | ii. $- 5 + 8$     | iii. $24 - 14$ |
| iv. $13 + 12$    | v. $45 - 12$      | vi. $48 - 33$  |
| vii. $- 38 + 17$ | viii. $- 41 + 28$ | ix. $44 - 37$  |

05) Calculate the answer using 8 bit one's complement method.

- |                 |                   |                 |
|-----------------|-------------------|-----------------|
| i. $6 - 8$      | ii. $15 - 19$     | iii. $21 - 34$  |
| iv. $- 12 + 6$  | v. $- 37 + 24$    | vi. $- 28 + 7$  |
| vii. $- 9 - 12$ | viii. $- 25 - 21$ | ix. $- 43 - 18$ |

06) Calculate the answer using 8 bit two's complement method.

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|-----------------|-----------------|-----------------|
| i. $8 - 5$      | ii. $13 - 10$   | iii. $23 - 18$  |
| iv. $- 15 + 25$ | v. $- 23 + 30$  | vi. $- 33 + 44$ |
| vii. $63 - 42$  | viii. $85 - 67$ | ix. $101 - 10$  |

07) Calculate the answer using 8 bit two's complement method.

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|-----------------|-------------------|-----------------|
| i. $7 - 12$     | ii. $14 - 18$     | iii. $25 - 32$  |
| iv. $- 34 + 7$  | v. $- 41 + 27$    | vi. $- 78 + 50$ |
| vii. $- 18 - 9$ | viii. $- 20 - 22$ | ix. $- 42 - 56$ |

