**Assignment 5 answers**

1. a) 2

2. a) Bluetooth

3. c) Flashing a microSD card

4. d) To interface with external hardware and devices

5. c) To interface with cameras

6. b) To interface with displays

7. c) Cellular

8. b) 5V

9. b) To store the operating system and user data

10. b) To connect to external speakers or headphones

11. a) A closed loop for the flow of electric current

12. a) Resistor

13. b) A circuit where the current can flow continuously

14. a) The circuit becomes open and current stops flowing

15. b) Creating prototypes of electronic circuits

16. c) By pressing them into holes in the board

17. c) To provide power and ground connections to components

18. c) Jumper wire

19. c) It allows for easy modification and reuse of components

20. a) Rows of holes are connected horizontally, and columns of holes are connected vertically

21. b) 26

22. b) It receives electrical signals from external devices.

23. c) External electronic components such as sensors, LEDs, and buttons

24. d) By toggling the voltage on GPIO pins to turn LEDs on and off

25. c) By using GPIO pins as clock SCL and data SDA lines

26. d) Sound waves

27. d) By emitting sound waves and measuring the time taken for the waves to bounce back

28. c) Detecting motion and presence

29. b) TX

30. b) 2

31. c) To convert physical quantities into electrical signals

32. d) Ultrasonic sensor

33. c) Transducer

34. d) Convert physical quantities into electrical signals

35. c) Transducer

36. b) Sensor

37. b) Comparing a measurement device to a known standard

38. c) It can cause drift and affect sensor accuracy.

39. d) Sensors may degrade or corrode over time.

40. c) Radio frequency interference

41. a) Adds all changes in the working directory to the staging area

42. a) git commit -m "Commit message"

43. a) git status

44. d) git branch

45. b) git checkout

46. d) git log

47. b) To list and manage remote repositories

48. d) git checkout -b

49. b) git merge

50. b) Authenticating and accessing a repository

51. d) PAT-based authentication

52. c) PATs can have limited scopes and expiration dates

53. d) You generate it from your GitHub account settings

54. a) Reading repositories

55. b) In the URL of the repository

56. b) To set a new remote URL for the "origin" remote

57. c) Personal Access Token

58. b) To replace the username and password for secure authentication

59. c) It changes the remote URL for the "origin" remote

60. d) It avoids exposing the username and password