	SCHOOL OF TECHNOLOG	Y, KANO STATE POLYTECHNIC, KANO	
	EMBEDDED SYSTEM DEVELOPMEN	T ASSIGNMENT QUESTIONS	
HND/SWD/23/0001	BASHIR DAHIRU UMAR	1. You are designing an automatic door control	
HND/SWD/23/0002	ZAINAB SUNUSI TIJJANI	system for a shopping mall. Explain how an embedded system is used in this scenario and list the essential hardware components required.	
HND/SWD/23/0003	MANNIR ILIYASU YUSUF		
HND/SWD/23/0004	ZAINAB IBRAHIM USMAN	2.List and explain at least five characteristics of	~
HND/SWD/23/0005	RUKAYYA USMAN MUHAMMAD	embedded systems. 3.Differentiate between embedded systems and	GROUP 1
HND/SWD/23/0006	USAMA HAMZA	general-purpose computing systems.	RO
HND/SWD/23/0007	MUNIRA MUHAMMAD ISAH	4.Identify ten real-world applications of embedded systems.	Ŋ
HND/SWD/23/0008	AISHA YUSUF SALIHU	Systems.	
HND/SWD/23/0009	SADIQ BABA SALIHU		
HND/SWD/23/0010	AHMAD SANI AHMAD		
HND/SWD/23/0011	ADAM MUHAMMAD ABDULLAHI	1.Explain the classification of embedded systems	
HND/SWD/23/0012	AISHA KABIR INDABAWA	based on performance and functional requirements. 2.A factory needs a temperature monitoring system to	
HND/SWD/23/0014	HUMAIRA MUDI LAWAN	maintain safety regulations. Which type of embedded	
HND/SWD/23/0016	FATIMA ABUBAKAR MATAWALLE	system (standalone, real-time, or networked) would	α
HND/SWD/23/0017	BABANGIDA	you recommend and why? Also identify components needed to achieve the desired goal.	A.
HND/SWD/23/0018	HUSAINI MUHAMMAD	3.Describe the differences between small-scale,	GROUP
HND/SWD/23/0020	HASSAN ABDULLAHI USMAN	medium-scale, and sophisticated embedded systems. 4.Explain why power consumption is an important	Ю
HND/SWD/23/0021	SIBAWAIHI MUHD MURTALA	factor in embedded system design.	
HND/SWD/23/0022	UMAR MUKHTAR UMAR		
HND/SWD/23/0023	HASIYA MUSTAPHA MUHAMMAD		
HND/SWD/23/0024	HAFSAT HASSAN SANI	1. You are given an ESP32 and an Arduino Uno to	
HND/SWD/23/0025	HALIMA SANI DARMA	build a smart home automation system. Compare their features and justify which one is more suitable.	
HND/SWD/23/0026	ISMAIL IBRAHIM IDRIS	2.Discuss at least three challenges faced in embedded system development. 3.Define the term "firmware" and explain its role in an embedded system.	
HND/SWD/23/0027	MUHSIN ADO ABUBAKAR		က
HND/SWD/23/0028	HABIBA ALIYU MUHAMMAD		
HND/SWD/23/0029	AISHA IBRAHIM UMAR	4.Describe the main components of an embedded	GROUP
HND/SWD/23/0030	MARYAM MUHAMMAD ADAM	system.	Ŋ
HND/SWD/23/0031	HADIZA HARUNA		
HND/SWD/23/0032	RUKAYYA JIBRIL SULAIMAN		
HND/SWD/23/0033	IBRAHIM UMAR MADUGU		

LIND/OMD/00/000F	DELLO CANUDELLO	1 A amort irrigation avetem requires consers to detect	
	BELLO SANI BELLO	1.A smart irrigation system requires sensors to detect soil moisture and automatically activate a water pump. List the essential sensors, actuators, and microcontrollers needed for this system.	
HND/SWD/23/0037	HASSAN TIJJANI HASSAN		
HND/SWD/23/0039	MANSUR AUWALU MIJINYAWA		
HND/SWD/23/0041	AISHA YUSUF	2.Explain the function of sensors and actuators in embedded systems.	4
HND/SWD/23/0042	SADIK BADAYI ABBA	3.What is the difference between microcontrollers and	JO
HND/SWD/23/0043	BELLO SUYUDI ADAM	microprocessors?	GROUP 4
HND/SWD/23/0044	AMINU SARKI ABDULLAHI	4.Explain how memory types (RAM, ROM, Flash Memory, and EEPROM) are used in embedded	O
HND/SWD/23/0045	AISHA JA'AFAR KULO	systems.	
HND/SWD/23/0047	AMINA ABDULLAHI MAHMOUD		
HND/SWD/23/0048	ZAINAB SALIHU MAIKARFI		
HND/SWD/23/0049	ABDULMUTALLAB MOHAMMAD	1.You are tasked with developing a traffic light control	
HND/SWD/23/0050	IDRIS ISAH ABDULLAHI	system using an embedded microcontroller. Identify three hardware components you need and their	
HND/SWD/23/0051	UMAR JABIR UMAR	functions.	
HND/SWD/23/0052	AHMAD BASHIR MAHMUD	2.Describe the key components of an Arduino	GROUP 5
HND/SWD/23/0053	SALIM UBA SAID	development board3.Explain the requirements analysis stage in	
HND/SWD/23/0054	HALIMA SANI LAWAN	embedded system design.	
HND/SWD/23/0055	USMAN SHEHU ABDULLAHI	4.Why is system integration a critical phase in embedded system development?	
HND/SWD/23/0056	FATIMA AHMAD BAYERO		
HND/SWD/23/0059	FATIMA HAMISU MUHAMMAD		
HND/SWD/23/0060	HAJARA SHAZALI SAAD		
HND/SWD/23/0061	SADIYA UMAR	You need to design an automatic water	
HND/SWD/23/0062	MUHAMMAD SANI YAHAYA	dispenser for pets. What are the key specifications you must define before starting the project?	GROUP 6
HND/SWD/23/0063	FARUQ MUHAMMAD	2. What factors influence hardware selection in	
HND/SWD/23/0064	IBRAHIM MUHAMMAD DANYARO	embedded system development?	
HND/SWD/23/0065	HARIS HARIS ADAM	3. Explain how testing and debugging are performed in embedded systems.	
HND/SWD/23/0066	RASHEEDAT ABDULAZEEZ	4. What is an embedded system communication interface?	
HND/SWD/23/0067	MUHAMMED KABIR AHMED		
HND/SWD/23/0068	ADEBISI ADIJAT ABIDEMI		
HND/SWD/23/0069	MUHAMMAD ABUBAKAR		
HND/SWD/23/0070	MUSA MAMUDA GAJIDA		

HND/SWD/23/0072 SHAMSU ISYAKU ALI HND/SWD/23/0073 HALIFA KABIR HND/SWD/23/0076 USAMA NUHU UMAR HND/SWD/23/0076 USAMA NUHU UMAR SANIABUBAKAR874@GMAIL.COM HND/SWD/23/0080 ABDULLAHI AUWALU IDRIS HND/SWD/23/0081 NAFISAT AMINU JAAFAR HND/SWD/23/0082 COMFORT ADAMU ALI HND/SWD/23/0085 HARD JAFAR MUHAMMAD HND/SWD/23/0086 ABDUL ALI LAWAN HND/SWD/23/0086 ABDUL ALI LAWAN HND/SWD/23/0087 RUKAYYA BELLO ABUBAKAR HND/SWD/23/00980 ABDURAHIM ABUBAKAR SANI HND/SWD/23/0099 ABDURAHIM ABUBAKAR SANI HND/SWD/23/0099 ABDURAHIM ABUBAKAR SANI HND/SWD/23/0099 ABDURAHIM ABUBAKAR SANI HND/SWD/23/0095 HAUWAU ABDULHAKEM HND/SWD/23/0095 AAMINU ISMAIL KADEMI HND/SWD/23/0096 ABDURAHMAN ADAMU HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0096 ABDURAHMAN ADAMU HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0097 SAMIN U SMAIL KADEMI HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0097 SAMIN ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0097 SAMIN ADAMU YUNUSA HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0097 SAMIN DISMAIL KADEMI HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0096 SANI ADAMU YUNUSA HND/SWD/23/0097 SAMIN ADAMU YUNUSA HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0109 SAMIN ADAMU YUNUSA HND/SWD/23/0109 WAYA BERAHIM ABDULLAHI ISAH HND/SWD/23/0109 WAYA BERAHIM ABDULLAHI ISAH HND/SWD/23/0109 WAHMUD ABUBAKAR KABIR	HND/SWD/23/0071	ADAMU USMAN	1.A company wants a biometric attendance system	
System, including hardware selection and communication interfaces. ALIFER KABIR HND/SWD/23/0074 MUJIBURRAHMAN MUJITTAPHA IDRIS Communication interfaces. 2.Differentiate between onboard and external communication interfaces. 3.Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 4. List at least four examples of wireless communication interfaces used in embedded systems. 4. List at least four examples of wireless communication interfaces used in embedded systems. 4. List at least four examples of wireless communication interfaces used in embedded systems. 5. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 6. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 6. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 7. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 8. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 8. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded systems. 9. Describe I2C (Inter-Integrated Circuit) and its use in embedded sys			for its office. Explain how you would architect the system, including hardware selection and	
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HND/SWD/23/0084 HARUNA ABUBAKAR LIYE HND/SWD/23/0085 AHMAD JAFAR MUHAMMAD HND/SWD/23/0086 ABDUL ALI LAWAN HND/SWD/23/0087 RUKAYYA BELLO ABUBAKAR HND/SWD/23/0089 AISHA BASHIR KURAWA HND/SWD/23/0090 ABDURRAHIM ABUBAKAR SANI HND/SWD/23/0091 ABUBAKAR ABDULLAHI SALISU HND/SWD/23/0092 MARYAM MUHAMMAD HND/SWD/23/0093 SAMINU ISMAIL KADEMI HND/SWD/23/0095 HAUWAU ABDULHAKEEM HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE 1. Your team is developing a weather station using an ESP32. Describe the steps involved in the embedded system is education to the embedded system in espective in the embedded system in expection. 2. How does Wi-Fi communication work in embedded systems? 3. What is ZigBee and where is it commonly used? 4. Define embedded firmware and explain its role in embedded systems. 4. Define embedded systems. 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is 2 in Robert in the embedded systems. 4. Define embedded firmware and explain its role in embedded firmware and explain its role in embedded firmware and explain its role in embedded systems.	HND/SWD/23/0082	COMFORT ADAMU ALI		
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HND/SWD/23/0086 ABDUL ALI LAWAN system design process, from requirements analysis to system design process, from requirements analysis to system integration. 2. HND/SWD/23/0087 RUKAYYA BELLO ABUBAKAR 2. HND/SWD/23/0098 AISHA BASHIR KURAWA 3. What is ZigBee and where is it commonly used? 4. Define embedded firmware and explain its role in embedded systems. 4. Define embedded firmware and explain its role in embedded systems. 4. Define embedded firmware and explain its role in embedded systems. 4. Define embedded systems. 4. Define embedded systems. 4. Define embedded systems. 4. Define embedded firmware and explain its role in embedded systems. 4. Define embedded systems. 4. Define embedded systems. 4. Define embedded firmware and explain its role in embedded systems. 4. Define embedded systems. 4. Define embedded systems. 4. Define embedded firmware and explain its role in embedded systems. 5. What is a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0084	HARUNA ABUBAKAR LIYE		
HND/SWD/23/0086 ABDUL ALI LAWAN HND/SWD/23/0087 RUKAYYA BELLO ABUBAKAR HND/SWD/23/0089 AISHA BASHIR KURAWA HND/SWD/23/0090 ABDURRAHIM ABUBAKAR SANI HND/SWD/23/0091 ABUBAKAR ABDULLAHI SALISU HND/SWD/23/0092 MARYAM MUHAMMAD HND/SWD/23/0093 SAMINU ISMAIL KADEMI HND/SWD/23/0094 SUMYYA SALISU ALA HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE system integration. 2. How does Wi-Fi communication work in embedded systems? 3. What is ZigBee and where is it commonly used? 4. Define embedded firmware and explain its role in embedded systems. 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0085	AHMAD JAFAR MUHAMMAD		
HND/SWD/23/0089 AISHA BASHIR KURAWA HND/SWD/23/0090 ABDURRAHIM ABUBAKAR SANI HND/SWD/23/0091 ABUBAKAR ABDULLAHI SALISU HND/SWD/23/0092 MARYAM MUHAMMAD HND/SWD/23/0093 SAMINU ISMAIL KADEMI HND/SWD/23/0094 SUMYYA SALISU ALA HND/SWD/23/0095 HAUWAU ABDULHAKEEM HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE systems? 3. What is ZigBee and where is it commonly used? 4. Define embedded firmware and explain its role in embedded systems. 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0086	ABDUL ALI LAWAN	system integration.	
HND/SWD/23/0089 AISHA BASHIR KURAWA 3. What is ZigBee and where is it commonly used? 4. Define embedded firmware and explain its role in embedded systems. 4. Define embedded firmware and explain its role in embedded systems. 5. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 4. Define embedded firmware and explain its role in embedded systems. 6. Define embedded firmware and explain its role in embedded systems. 7. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 8. Why is it important to optimize memory usage in embedded firmware development? 9. Why is it important to optimize memory usage in embedded firmware development? 9. What is an RTOS (Real-Time Operating System)? 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 9. Why is it important to optimize memory usage in embedded firmware development? 9. What is an RTOS (Real-Time Operating System)? 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is ZigBee and where is it commonly used? 4. Define embedded systems.	HND/SWD/23/0087	RUKAYYA BELLO ABUBAKAR		
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HND/SWD/23/0091 ABUBAKAR ABDULLAHI SALISU HND/SWD/23/0092 MARYAM MUHAMMAD HND/SWD/23/0093 SAMINU ISMAIL KADEMI HND/SWD/23/0094 SUMYYA SALISU ALA HND/SWD/23/0095 HAUWAU ABDULHAKEEM HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE HND/SWD/23/0107 MUKHTAR AHMAD MAHE	HND/SWD/23/0090	ABDURRAHIM ABUBAKAR SANI	4.Define embedded firmware and explain its role in	
HND/SWD/23/0093 SAMINU ISMAIL KADEMI HND/SWD/23/0094 SUMYYA SALISU ALA HND/SWD/23/0095 HAUWAU ABDULHAKEEM HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE HND/SWD/23/0107 MUKHTAR AHMAD MAHE 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0091	ABUBAKAR ABDULLAHI SALISU	embedded systems.	
HND/SWD/23/0094 SUMYYA SALISU ALA HND/SWD/23/0095 HAUWAU ABDULHAKEEM HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0092	MARYAM MUHAMMAD		
HND/SWD/23/0095 HAUWAU ABDULHAKEEM HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE 1. A company wants to install a fire detection and alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0093	SAMINU ISMAIL KADEMI		
HND/SWD/23/0096 ABDURRAHMAN ADAMU HND/SWD/23/0098 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE alarm system in a shopping mall. Suggest a sensor-based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0094	SUMYYA SALISU ALA		
HND/SWD/23/0109 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE based embedded solution, specifying hardware components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0095	HAUWAU ABDULHAKEEM	1	
HND/SWD/23/0100 SANI ADAMU YUNUSA HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0096	ABDURRAHMAN ADAMU		
HND/SWD/23/0100 YUSUF SALISU MUAZU HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE 2. Why is it important to optimize memory usage in embedded firmware development? 3. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0098	SANI ADAMU YUNUSA	components and system operation. 2. Why is it important to optimize memory usage in embedded firmware development?	
HND/SWD/23/0102 SUMAYYA IBRAHIM ABDULLAHI HND/SWD/23/0103 ABBA HAMISU MIJINYAWA HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE HND/SWD/23/0107 MUKHTAR AHMAD MAHE HND/SWD/23/0107 SUMAYYA IBRAHIM ABDULLAHI S. What is an RTOS (Real-Time Operating System)? 4. List and briefly describe three examples of RTOS used in embedded systems.	HND/SWD/23/0100	YUSUF SALISU MUAZU		
HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE RTOS used in embedded systems.	HND/SWD/23/0102	SUMAYYA IBRAHIM ABDULLAHI		
HND/SWD/23/0104 HAFIZU UMAR HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE RTOS used in embedded systems.	HND/SWD/23/0103	ABBA HAMISU MIJINYAWA	System)?	
HND/SWD/23/0105 ISAH ABDULLAHI ISAH HND/SWD/23/0107 MUKHTAR AHMAD MAHE	HND/SWD/23/0104	HAFIZU UMAR		
HND/SWD/23/0107 MUKHTAR AHMAD MAHE	HND/SWD/23/0105	ISAH ABDULLAHI ISAH	RTOS used in embedded systems.	
	HND/SWD/23/0107	MUKHTAR AHMAD MAHE		
	HND/SWD/23/0109	MAHMUD ABUBAKAR KABIR	1	

HND/SWD/23/0110	MUHAMMAD ABDULKADIR USMAN	1.A home security system requires a camera module to send data to a cloud server. Which wireless communication interface (Wi-Fi, ZigBee, GSM, LoRa)	GROUP 10
HND/SWD/23/0111	AISHA MUSA ISAH		
HND/SWD/23/0112	USMAN UMAR MUSA	is best suited for this task?	
HND/SWD/23/0115	AMATULHAKEEM A.ABDULLAHI	2.Explain the role of task management in an RTOS-	
HND/SWD/23/0116	BELLO SADIYA WAZIRI	based system. 3.What factors influence the choice of an RTOS for an embedded system? 4.Compare preemptive scheduling and cooperative scheduling in RTOS-based embedded systems.	
HND/SWD/23/0117	MUAZZAM BALA SALE		
HND/SWD/23/0118	USMAN MUSA HASSAN		ច
HND/SWD/23/0119	SADIYA MOHAMMED		
HND/SWD/23/0122	ADAM IBRAHIM ISAH		
HND/SWD/23/0126	AMIR BASHIR LAWAN		
HND/SWD/23/0127	HAFSA MUSA HASSAN	"1. You are designing an automatic door control	GROUP 11
HND/SWD/23/0131	IBRAHIM AHMAD ISYAKU	system for a shopping mall. Explain how an embedded system is used in this scenario and list the	
HND/SWD/23/0132	ISAH ISMAIL	essential hardware components required. 2. List and explain at least five characteristics of embedded systems. 3. What factors influence hardware selection in embedded system development? 4. List and briefly describe three examples of RTOS used in embedded systems.	
HND/SWD/23/0134	SAFINA ABDULLAHI AHMAD		
HND/SWD/23/0135	ZAINAB SHEHU GARBA		