

7(a)	- It does not have a mechanical structure - It does not have any actuators ... so it cannot move itself
7(b)	Microphone
7(c)	Any four from: For example: - Gather data from the same/different voices // It can ask a user to say lots of different words Analyse/identify patterns in a user's voice - It can adapt its own processes - It can learn to identify a user's voice - Stores successful/unsuccessful voice commands - It can learn different ways of making the same request - It can learn the different pronunciations // It can learn different accents - It can learn by listening to lots of different voices - It can learn to ignore any background/environmental noise if a user is speaking
7(d)	Any two from: - It has a single/limited function - It has dedicated hardware - It has a microprocessor - Its function is not easily changed
7(e)	Any two from: For example: - The music/books can be easily accessed from any smart speaker - The user doesn't need to purchase a secondary storage device for the books/music // Smart speaker doesn't need a large amount of secondary storage - The user doesn't need to maintain the storage needed for the books/music - Smart speaker can be smaller in size (as it doesn't need large amounts of secondary storage) - Almost unlimited storage available for the books/music // Easy to increase storage capacity needed
7(f)(i)	Any two from: - Data could be lost - Data could be gained - Data could be changed - Skewing of data could occur - Interference could occur - Crosstalk could occur - Data collisions could occur - Data packets could time out/reach their hop count
7(f)(ii)	Any two from: - Parity byte check - Parity block check - Checksum - Echo check - ARQ

6(a)	Any three from: • Simulation of intelligent behaviours by computers • Collection of data and rules for using that data • A computer that has the ability to learn • A computer that has the ability to adapt • A computer that has the ability to reason/make decisions
6(b)	Any three from For example: • It could use machine learning • It can collect data about the players actions • Analyse/identify patterns in the player's movements • ... so it can learn how the player moves • ... to help predict the next movement of the player • It can adapt its own movements to match the players // It can adapt its own processes • It can store successful/unsuccessful moves • It will learn the most efficient/optimal movements against a player
6(c)	Two from (one mark for high-level, one mark for matching comparison to low-level) • High-level language is written in English-like statements ... • ... low-level language is written using mnemonics/as machine code/in binary • High-level language is easier to read/write/debug ... • ... low-level language is more difficult to read/write/debug • High-level language is machine independent/portable ... • ... low-level language is not machine independent/portable • High-level language cannot directly manipulate the hardware ... • ... low-level language can directly manipulate the hardware • In high-level language, one line of code can perform multiple actions ... • ... in low-level language, one line of code performs a single action
6(d)(i)	Interpreter
6(d)(ii)	Compiler
6(d)(iii)	Compiler
6(d)(iv)	Interpreter

6(a)	Any three from: • Collection of data • Rules for data • Ability to reason • Ability to adapt
6(b)	Any three from: Examples • Changes its data/rules • ... according to feedback/results • If a result does not give a suitable response this is recorded • ... next time the result is changed • ... to provide more accurate/relevant results in future • Supervised/unsupervised learning

9(a)	One mark for each correct term in the correct order. • artificial • interface • inference engine • knowledge base • rule base • inference engine • interface
9(b)	Machine learning

10(a)	Any one from: – The ability to learn/adapt // machine learning abilities – The collection of data and the rules for using that data – The ability to reason // has problem solving abilities // makes predictions – Simulates intelligent/human behaviour – Analyses patterns
10(b)	Any six from: – It has an interface ... – ... used to input data/view output – It has a knowledge base – It has a rule base – It has an inference engine – Applies the rule base to/and the knowledge base to provide output/diagnosis/result/solution/decision – Decides what to ask next based on the data input

9(a)	Three from: • Rule base • Knowledge base • Interface
9(b)	Any two from: • It makes decisions • ... by applying the <u>rules/logic</u> to the <u>facts/knowledge</u> ... • ... to provide a result/diagnosis