Q1:

1. Intelligence: Ability to perceiving , understanding , predicting and manipulating surrounding world.
2. Artificial Intelligence: Artificial Intelligence is a branch of science which tries not only to reproduce the performance of intelligence task but also tries to build entities which can do such things.
3. Agent: Agent is something that performs an action.
4. Rationality: It is state of system, where system always performs an action which according to it is right .
5. Logical Reasoning: Logical Reasoning provides how facts and scientific truths leads to an action.

Q2:

Turing test contributes to challenge that machine can fool an interrogator to consider it as human. Through many competitions, there are number of chatbots which were able to fool some interrogators, but it is also because of the fact about how unskilled an interrogator .Thus at current state, chance of any chatbots passing a Turing test is about 10-20%. But current trends and investment in AI, especially for Games and Movies (Entertainment field), may make sure that AI could pass Turing test in next 50 years.

Q3:

Reflex actions can be considered rational since, in reflex action, person does what is right thing to do. But they cannot be considered as intelligent because there is only perceiving of surrounding but not manipulation of surrounding world.

Q4:

You cannot consider passing an IQ test with score of 200 as test of intelligence. Even though IQ test correlates with different fields of intelligence such as visual and perception, it doesn’t measure everything. Also IQ tests are not generalizable for their results and pre supposed about innate ability which makes them controversial.

Q5:

In Aplysia,

Number of Neurons = 2 \* 105

Cycle Time = 10-3 sec

Memory Updates/ sec = Number of neurons / Cycle Time

= 2 \* 105/10-3 = 2 \* 108

Memory Updates/ sec for Personal Computer = 1010

Hence personal computer is 100 times faster than Aplysia .

Q6:

Introspection of thoughts i.e. reporting on one’s inner thoughts can be considered as inaccurate. Introspection of thoughts requires reporting of what currently one is thinking and how he/she came to that thought. But when someone is reporting on thought, the person is actually thinking about report and not about thought. So whenever the person will be reporting, one would be reporting what one was thinking and not what one is thinking. This thinking pattern makes it difficult to report exact current thoughts. The other problem is how one reached to that thought. But humans are so unaware of their own minds that it’s almost impossible for anyone to let others know, how one may reached that thought,

Also as many philosophers have quoted, imagination power of brain is so incredible that it’s almost impossible just to keep track of all possible thoughts coming into the mind, less possible to report them all.

Q7:

1. Supermarket barcode Scanner: Bar code scanners have predefined sets of inventory numbers which they try to match with current product. Since for every new product, it is necessary to add data information into inventory for fetching it through barcode scanner, system simply becomes rule based pattern matching system or if else based system removing its possibility of artificially intelligent agent.
2. Web search Engines: Web search engines crawl through all webpages of internet in search of requested string and return contextual data. For this task they needed to search not only for matching strings, but also the context correlation between words in strings. Even though previous search engines were not capable of performing such things, today’s search engines have capabilities to perform such task intelligently.
3. Voice operated telephone Menu: It is common example of voice user interface (VUI) where machine waits for particular word (keyword) to be spoken and performs action accordingly. May be one can add Natural Language Processing to it, but unless that happens, its simple VUI receiving keywords and performing action over it. Thus not making itself an Artificial Intelligent Agent.
4. Internet routing algorithm that respond dynamically to the state of network: It can be considered as somewhat intelligent since dynamicity of algorithm makes it heuristic (might be optimal might be not) . Also information available is partial thus no simple algorithm could work its way out. But it still cannot be considered as fully intelligent

Q8:

The performing of complex mathematical operations, such as convolving an image with Gaussian model, is part of action getting performed by user/actual person. Now living bodies sensor systems are results of thousands of years of evolution process. Thus such complex mathematical operation performance was developed as the need required. Learning these operations helps one to apply advantages of them to somewhere else rather than over its own sensory system, since our brain has been evolved in the manner where it can perform it as per of bigger procedure.

Q9:

Evolution of living beings motivates systems to be rational .Now, for any living system , right thing to do is to survive and to reproduce .Now , adaptation of living beings to their surrounding is the result of their survival instinct, thus making them rational.

Q10:

A science is field of study that leads to gaining knowledge with fallible theory while engineering is the field of applying gained knowledge/science to real world problem. Thus AI seems to be both.

Q11:

Surely the second statement is true. Computers can do only what their programmers tell them, but that cannot imply the former statement. For intelligence, computers should be able to perform manipulation of surrounding on the basis of perceived data that which they can do like Embedded System. Even though systems currently designed are specific to particular scenario, soon systems are able to apply their factorial knowledge to gain manipulation of surrounding environment, thus gaining intelligence.

Q12:

Even though animals do what their genes told them to do, genes have been adapted by applying constant intelligence by animals to their surrounding environment. Thus genes are actually developed due to animal’s intelligence.

Q13:

By this logic, diamond and humans should be considered as equal since both of them are made of Carbon. But still humans are considered intelligent, so do animals and hence computers as well.