Q1.

Langchain is a framwork used to integrate LLMs with your source/data and manages different compounds to performe well to get best response for user query

Different Compounts are:

1)Tools

2)Agents

3)Memory

4)prompts

5)Chains

Q2.

PromptTemplate means giving LLMs a structure prompt so that it is used to produce the best response

This promptTemplates are resusable.

Different Types of Prompt Templates are:

1)Static Prompt Template-This is hardCoded

2)Dynamic Prompt Templat-Input variables are filled at runtime

Q3.

Lets take Chart GPT as an example for real life scenario :

ConversationBufferMemory : It store reacent charts in memeory(Temporary memory)

In this example the chart page that we chart comes under this conversationBufferMemory.

SummaryMemory : It stores the information about our chart history/our previous charts Like in Chart GPT we had a section on the left side of its interface where we can see our previous topics that we had chat with it.

VectorStoreMemory : It store the meaning of the queries that we have asked for and on what we are showing interest so when we ask a question again that implies the same meaning of previous then it will retrive the same output like if we say my name is Abhiram and after that if I ask a question that signifies to say my name it will give output as Abhram

Q4.

Chains:

Chains are a sequsence that tells what are steps that need to perfume and what are the things are needed to use .

It is fixed what to do work

Agents:

While Agents are used to take decision dynamically on tools like which tool need to be used on which scenario dynamically .

Take decision during the runtime

Q5.

Output Parsers :

It takes the raw text from the output generated from LLMs and then formate it into a structural Formates like JSON, List, dictonary etc..

Different Types of Output Parsers:

StrOutputParser :

In this type it conver the raw text into a string formate and give the output.

StructuredOutputParser :

In this type it will convert the raw text into a structural formate like JSON, List, Dictornary etc…

PydanticOutputParser :

In this type it will also convert into a structura formate like JSON, List, Dictonary etc.. but it will apply some strick rules like input list cannot be empty if the rules are violated it will raise the error.

Q6.

If suppose we want to make a bot which tells us complete upto data information and also performes any kind of calculation then we will be integrating the LLMs with tool (Tool means build in function that are used to perform a particulatr task when called by Agents) so in this scenario we will be using tools like DuckDuckGoSearchRun, Calculator tools to perform task.By using DuckDuckGoSearchRun we are able to search in web to get information that includes present

and by using the calucater tool we can perform any kind of calculations.

Q7.

SequentialChain :

This a type of chainning in which the output of one thing becomes the input for another one. For example lets take a topic python and I want to make summarization of this topic so first I want some kind of information about it so first I will be generating text on this after that I will take this content as input and genereate summiriztion on that content

CustomChain :

This is a type of chaining in which I can customize the chain accoding to my wish. For example I want to make a chain that gives a output to generate the weather in states so the chain will be first take the input the do the api call to get the weather at that state then generate the output

Q8.

LangChain integrate with external APIs or databases by using:

1)Tools

2)Custom Chains

By using Tools like DuckDuckGoSearchRun we can access the external data information throught web and by custom chains also we can do same work basically we will be using tools in chains.

Q9.

In a multi-turn chartBot, memory is essential because it allows the bot to remember context from earlier in the conversation and use it in later responses.

Without memory, the bot treats every message like a completely new chart, which breaks natural conversation flow.

Q10.

1)Depends on LLMs quality this can be managed y using the best LLMs available

2) Hallucinations some times Langchain can hallucinate some false information this can be managed by properly training the LLMs.

3)Limited API call we can only use a limited number of API call for some LLMS for that we can either need to purchase the premium subcribtion or change the model.