How may a situation develop in case of fire on board.

Fire on board an aircraft is one of the most/extremely dangerous/hazardous situations. It can happen at any stage of flight. In case of in-flight fire the pilot can divert to a suitable aerodrome. The pilot may declare an emergency and may need to land as soon as possible. If the pilot can't reach the aerodrome he may make decision for forced/off the field landing or ditching. In any case the crew should do the best to save the passengers and the aircraft. If the crew doesn't act correctly and timely the total aircraft can catch fire and it can lead to fatality/catastrophe.

- ***How dangerous may fire be?***

I think fire on board is always an emergency as it spreads very quickly/within a very short period of time. It threatens the lives of passengers and crew. Due to toxic poisoning passengers can experience health problems or even die. The crew may be incapacitated and lose control of the aircraft. It can result in crash.

- ***What factors may lead to fire on board an aircraft?***

Fire may be caused by different reasons: (There are different reasons for fire on board) (Reasons for fire include) short circuit in electrical system, fuel or oil leak, engine failure, overheating of equipment, improper/incorrect transportation of dangerous goods, lightning or bird strike, hail, volcanic ash and human factor. It may be pilots' or cabin crew errors or illegal smoking.

- ***What kind of requests and actions may you expect from the crew in case of fire emergency?***

In such a case the crew may start immediate descent without ATCO's clearance and then inform the controller. He may set Squawk 7700 and declare MayDay. He may proceed to the nearest aerodrome and request priority for landing. Of course he will need fire brigade, ambulances and other emergency support. Upon landing the crew will start immediate passengers' evacuation.

- ***How does such a situation affect ATC operations?***

Actually controllers' workload increases because controllers will have more communication and coordination with different services. Besides such situations require more team work, additional attention and concentration. Controllers may experience stress, fatigue, nervousness and work under pressure.

- ***How does such a situation affect aerodrome operations?***

Such situations may bring to delays, schedule breakdown , traffic congestion. Airport operations may even be stopped for some period of time because the emergency aircraft may block the RW. The ground staff will need to provide additional vehicles to reposition the aircraft and evacuate the passengers.

- ***What ground services are normally alerted in case of fire emergency?***

According to the rules we alert the fire brigade, medical services, the ground staff, security and police, search and rescue team.

- ***What are the ATC actions in case of fire report?***

Air traffic controlllers should act in accordance with ASSIST principle:

A – acknowledge the fire/smoke problem, ask if the crew is able to control the fire/smoke

S –Separate the aircraft

S – Impose radio silence if necessary, use separate frequency where possible

I – Inform airport emergency services and all concerned

S – Support the crew with any information requested (type of approach, runway length and aerodrome details, etc.)

T – Provide/give the crew time to assess the situation; don't press with non urgent matters

- ***How is an emergency evacuation different from normal evacuation?***

Emergency evacuation is an urgent procedure and organized by the cabin crew. Passengers leave the aircraft using escape slides/emergency chutes and all emergency exits. Emergency evacuation may happen on the RW or in any suitable aerodrome area. As for normal disembarkation, it is a situation when people get off the plane one by one using passenger doors and steps. As a rule, it happens on the stand.

- ***In your opinion, will people be able to find effective ways of preventing fire on board an aircraft in the future?***

I know/hope that people are trying and will try to do it. But, to my mind, it's impossible to solve the problem completely. I think so because one of the main reasons for fire is a human factor and, unfortunately, it can/will remain.
(It's on the one hand but on the other hand) why not. The younger generation nowadays is very progressive with the ideas. They might use sophisticated technology, invent nonflammable materials, possibly, even fuel. At least, I think so.

- ***Have you ever had/heard of a situation connected with fire on board?***

Happily, fire situations on board are quite rare nowadays but still some of them may be fatal, as it happened to Tupolev154 about ten years ago at Surgut airport. As far as I can remember during push back procedure one of the engines caught fire. The crew started emergency evacuation and saved about 100 occupants but three people were killed more than forty were badly injured. As for the aircraft it was completely destroyed and burned.

- ***Types of fire.***

In-flight fire, Engine fire, Electrical fire, Cabin fire, it's fire in the passenger cabin, a lavatory, a seat, a galley, overhead compartment fire . It can be caused by careless smoking, electrical system malfunctions, heating system malfunctions. Also it may be a Wing fire, a Hidden fire or Post crash fire.

- ***Aircraft Firefighting Equipment***

Automatic fire extinguishing systems (fire bottles) . Portable fire extinguishers**.** Smoke detectors . Smoke protection devices: Protective Breathing Equipment - PBE, Smoke goggles, Oxygen masks, Fire protection gloves, Fire blankets, Fire/Crash axes.