

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

a-level exam questions & answers:

hazards (section c) >

mark scheme | 20-mark question #3



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Q.:	Sp. Ref.:	Information For Markers:	B'down:	Marks:
3)	3.1.5.1 & 3.1.5.6	Evaluate to what extent the outcome of a recent wildfire event has been influenced by the actions of prediction, planning and hazard management. AO1 – Knowledge and understanding of a named recent wildfire event including causes, effects and impacts (primary / secondary) and actions taken to mitigate the hazard to include prediction, planning and management strategies. AO2 – Application of knowledge and understanding to identify and assess the relationships between causes and impacts and the relative successes and failures of human agency in breaking these links thus lessening the hazard. Notes for answers The direction of the response largely depends upon the chosen case study of wildfire season or event in recent history (this is deliberately quite opaque so as to give students most flexibility.) Credit may be give to students using further example wildfire seasons or events in a limited capacity to further or counter a point made. AO1 • Case study of a recent hazard event involving a wildfire which can be anywhere globally, provided geographically relevant. Examples can include the 2016 Alberta Wildfires / 2009 'Black Sunday' or 2019 Australian Wildfire seasons. Knowledge that fires in nature are regular, cyclic events which can be cause by both natural and human activity. • Knowledge and understanding surrounding the types of wildfire events (crown/surface/ground), their maximum speed and trajectories with reference to the case study example. • Candidates should be able to identify determinants, characteristics and influences of wildfires including vegetation type (e.g. pyrophytic plants), climate and weather (e.g. El Nino years) and fire behaviours. • Knowledge and understanding surrounding the impacts both primary and secondary of wildfire events to include social, economic, political, and environmental damages. Wildfires are tremendously difficult to manage once they reach a certain scale and often burn relentlessly for months on end. Many countries are vulnerable, particularly as the risks associated with climate change and global warming will make fire events more widespread, frequent and intense. • There are various management plans that can be implemented in order to lessen their impact, through both	AO1=10 AO2=10	20

mitigation and adaptation. Also important are actions taken before the hazard arrives which can be completed annually or in the off-season in order to prepare and be able to predict when and where these events may occur.

- The Hazard Management Cycle.

AO2

- Nicknamed 'the beast', the 2016 Alberta Wildfires were among the most devastating in Canadian History. A combination of natural El Nino cycles and a very warm spring led to idea "tinder dry, perfect storm" conditions for numerous wildfire events, which collectively de-housed 88,000 residents and destroyed 580,000ha of land. The Canadian government was widely praised for its overall response, primarily due to the Canadian Bureau Of Meteorology being technologically advanced and able to track and trace preliminary wildfire events by satellite. This aided evacuations from Fort Mc. Murray, helping this hazard be fatality-free.
- However, it could be argued that whilst prediction technologies are very useful, without adequate planning and infrastructure the wildfire event is much more difficult to control. Planning for wildfires is often far more 'manual' or 'analogue.' This is where the 2016 wildfires were less successful, where for example existing fire breaks in shrubbery had been neglected and necessary transport infrastructure under-maintained leading to massive queues and clogged roads for days, heightening risk.
- One of the most successful strategies in order to decrease fire risk is through education. The US Forest Service have since 1944 promoted the 'Smokey Bear' advertising program through which they aim to teach citizens of their own responsibilities not only in dealing with fires when they occur, but also preventing them in the first place. It is estimated that 9in10 wildfire events are at least of partial human origin through activities such as camp sites, deforestation, smoking, arson etc... Such educational initiatives can be highly effective in ensuring that the general population is prepared, equipped and knowledgeable of the risks of fire events.
- Some candidates may argue that the social, economic and political factors are often more important for governments, and therefore often the biggest failures in terms of fire management is the devastation caused to the natural environment. In Australia, it is estimated over 24 million ha of land has been lost to wildfires in recent years, and over 500m animals have lost their lives. Although natural, these events pose an immense burden on the biocapacity of areas it involves and can cause species extinction, crop destruction and many other associated impacts which are almost always an afterthought in terms of wildfire management.
- Conclusions may make reference to the fact that "whilst [these strategies worked this time around], in the future with the rising of global ambient temperatures and climate change, future, more severe and intense events like we have seen in Australia in 2009 and 2019 may be increasingly difficult to manage without significant investment and technological advancements.

Marking Level Criteria:

Level/Mark Range	Criteria/Descriptor
TOP LEVEL 4 (16-20 marks – 80+% - typically an A* answer)	- Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. Interpretations are comprehensive, sound and coherent (AO2). - Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). - Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). - Full and accurate knowledge and understanding of key concepts, processes and interactions and change throughout (AO1).
HIGH LEVEL 3 (11-15 marks – 55-75% - B to A grade answer)	- Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question. Interpretations are generally clear and support the response in most aspects (AO2). - Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). - Generally clear and accurate knowledge and understanding of key concepts, processes and interactions and change (AO1)
LOWER LEVEL 2 (6-10 marks – 30-50% - D-C grade answer)	- Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). Interpretations are partial but do support the response in places. - Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). - Some knowledge and understanding of key concepts, processes and interactions and change. There may be a few inaccuracies (AO1).
LOW LEVEL 1 (1-5 marks) - <25% - E or below answer	- Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). Interpretation is basic. - Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). - Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Very limited relevant knowledge and understanding of place(s) and environments (AO1). - Isolated knowledge and understanding of key concepts, processes and interactions and change. There may be a number of inaccuracies (AO1)
LEVEL 0 (0 marks) – no answer provided	Nothing worthy of credit (something has gone ridiculously wrong if you're here!)