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| **IBDP Geography – Option A Freshwater – Question Spotting May 2023** |

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| **Syllabus Point** | **‘Already Asked’ - Questions** | **Date** | **‘Be Prepared For’ Questions** |
| **1. Drainage basin hydrology and geomorphology (Process)** | | | |
| The drainage basin as an **open system** with **inputs** (precipitation of varying type and intensity), **outputs** (evaporation and transpiration), **flows** (infiltration, throughflow, overland flow and base flow) and **stores** (including vegetation, soil, aquifers and the cryosphere) |  |  | Expect a short response question on these areas based on a graphic, flow chart, hydrological cycle diagram etc. See past papers. |
| **River discharge** and its relationship to **stream flow, channel characteristics and hydraulic radius** | Outline the relationship between river discharge and **hydraulic radius**. [2] | May 2022 | Outline the relationship between river discharge and channel characteristics. [2]  Outline the relationship between river discharge and hydraulic radius. [2] |
| River processes of **erosion, transportation and deposition** and spatial and temporal factors influencing their operation, including **channel characteristics and seasonality** |  |  | Explain two possible ways in which erosion/transportation/deposition (choose one) can be influenced by channel characteristics / seasonality (choose one). [3+3] |
| ​The formation of typical river land forms, including **waterfalls, floodplains, meanders, levees and deltas** | Examine the relative importance of erosion and deposition in the formation of  floodplains and meanders. [10] | May 2019 | Examine the relative importance of erosion and deposition in the formation of  deltas and levees. [10] |
| **2. Flooding and flood mitigation (Place)** | | | |
| Hydrograph characteristics (**lag time, peak discharge, base flow**) and natural influences on hydrographs, including geology and seasonality | Examine the ways in which different **physical** factors can affect the characteristics  of hydrographs. [10] | Nov 2020 | Expect a short response question based on a visual containing a hydrograph e.g. working out the lag time etc.  Outline the relationship between the lag time on a hydrograph and a heavy rain event in winter (seasonality). [2] |
| ​  How **urbanization**, **deforestation and channel modifications** affect flood risk within a drainage basin, including its distribution, frequency and magnitude | Explain three possible ways in which **urban** development might change how  rainwater moves through a drainage basin. [2+2+2]  Examine how **human and physical factors** can contribute to a **low** risk of river flooding. [10]  To what extent are **human factors more important than physical factors** in increasing  the risk of flooding in different places? [10] | May 2019  May 2021  Nov 2022 | Explain three possible ways in which **deforestation** might change how  rainwater moves through a drainage basin. [2+2+2]  Explain two possible ways in which **channel modification** might change how  rainwater moves through a drainage basin. [3+3] |
| **​**Attempts at flood prediction, including changes in weather forecasting and uncertainty in climate modelling |  |  | Explain two possible attempts at flood prediction [3+3]  Outline how there can be uncertainty in climate modelling [2] |
| Flood mitigation, including structural measures (dams, afforestation, channel modification and levee strengthening) and planning (personal insurance and flood preparation, and flood warning technology)  **• Two contrasting detailed examples of flood mitigation of drainage basins** |  |  | Explain three possible ways in which **flood mitigation** can reduce the impact of a flood event [2+2+2]  Explain three possible ways in which **personal planning** can reduce the impact of a flood event [2+2+2]  Examine the strategies used in the in the **mitigation** of flooding in **contrasting basins** [10] |
| 1. **Water scarcity and water quality (power)** | | | |
| Physical and economic water scarcity, and the factors that control these including the causes and impacts of droughts; the distinction between water quantity and water quality |  |  | Explain two factors that control the physical scarcity of water [3+3]  Explain two factors that control the economic scarcity of water [3+3]  Outline the difference between water quantity and water scarcity [2]  Outline two impacts of drought [2]  Explain two factors that influence the cause of drought [3+3] |
| Environmental consequences of agricultural activities on water quality, **to include pollution (eutrophication) and irrigation (salinization)**  • Detailed examples to illustrate the role of different stakeholders | Examine the relative severity of the different effects of agriculture on freshwater quality. [10]  Outline one environmental problem caused by eutrophication. [2]  Explain one human reason and one physical reason why some areas of a freshwater  lake experience high levels of eutrophication. [3+3] | Nov 2019  Nov 2020  Nov 2020 | Outline one environmental problem caused by salinization. [2]  Explain one human reason and one physical reason why some areas of a freshwater  lake may experience high levels of salinization. [3+3]  Evaluate the negative consequences of agricultural activity on water quality, and the role of different stakeholders. [10] |
| Growing human pressures on lakes and aquifers, including economic growth and population migration |  |  | Explain two human pressures on lakes [3+3]  Explain two human pressures on aquifers [3+3] |
| **Case study of one internationally shared water resource and the role of different stakeholders in attempting to find a resolution** | Examine why it can be difficult to achieve stakeholder agreement over how best to  manage one or more water resources. [10]  Examine the management challenges that internationally shared water resources  can create. [10] | May 2021  May 2022 |  |
| 1. **Water management futures** | | | |
| The importance of strengthening participation of local communities to improve water management in different economic development contexts, **including sustainable water use and efficiency, and ensuring access to clean safe and affordable water** | Examine the role of local communities in the management of water resources. [10]  Explain two ways in which local communities could improve the **sustainability of**  **water use**. [3 + 3] | Nov 2020  Nov 2020 | Examine the role of local communities in the management of water resources in countries of contrasting levels of economic development. [10]  Explain two ways in which local communities could improve the **access to safe and affordable water** [3 + 3] |
| Increased **dam building** for multipurpose water schemes, and their **costs and benefits**  **• Case study of contemporary dam building expansion in one major drainage basin** | Examine why some communities and environments may **benefit** more than others  from the building of large dams. [10] | May 2022 | Evaluate the costs and benefits of a dam building scheme in one named drainage basin (10) |
| The growing importance of integrated drainage basin management (IDBM) plans, and the costs and benefits they bring  **• Case study of one recent IDBM plan** | Examine the costs and benefits, for different stakeholders, of one recent integrated  drainage basin management (IDBM) plan. [10]  Examine the reasons why the integrated management of water resources within  drainage basins is becoming more important. [10] | May 2019  Nov 2022 | Examine the environmental and economic costs and benefits of one recent integrated drainage basin management (IDBM) plan (10) |
| Growing pressures on major wetlands and efforts to protect them, such as the Ramsar Convention  **• Case study of the future possibilities for one wetland area** | Evaluate the strategies used to manage the growing pressures on one named  major wetland. [10] | May 2019 | Examine the pressures on one named  major wetland and the efforts to protect it. [10] |