Description You are employed by a large general contractor, as a Design Build Technician. You have been tasked with a design brief to select suitable materials for a new sports facility to an existing secondary school in the Midlands. The sports facility will house changing and shower facilities, indoor sports hall (multi-purpose), two squash courts, a small catering kitchen and swimming pool. The Managing Director suggests that your report/brief covers: Discuss the terms ‘met’ and ‘clo’ in terms of human comfort in relation to PPD and PMV. Suitable building materials and additional envelope elements to help manage heat loss and solar heat gain to the envelope and internal spaces. Excessive uses of energy for ventilation of the structure. Appropriate lighting systems for the various parts of the building and external lighting. Control of noise transmission through the structure both externally and internally. You have been also tasked in completing energy performance calculations on the structure for heat loss (Convective U value), lux values (lighting), acoustic and ventilation rates. You are to evaluate the results from these calculations and make sound recommendations on minimising energy usage along with passive and active systems to maintain human comfort within the structure. Please note that your findings need to comply with current building regulations and professional bodies recommendations and clear reference needs to be evident in your report/narrative. Calculated tasks: Three identical fans in a plant room produce a total sound power level of 88 dB, if one of the fans is turned off what is the new sound power level in the room? The sports hall has a volume of 5000 m3 and a reverberation time of 1.6s. Calculate the amount of extra absorption required to obtain a reverberation time.