







## CHY1701 FAT A2 SLOT – ONLINE EXAM QP (2021 June 11)

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Question : 7 of 7

Marks for this Question : 10



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(i) As an engineer you are looking for non-lubricating bearings to reduce the weight of the instrument. Suggest your best choice and justify the same based on the properties of it; explain how it can be synthesized. (5M)





(ii) You are provided with the PVC granules. Which moulding technique will be suitable to fabricate the PVC pipes? (5M)

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i) Standard hard water has been prepared by dissolving 1.0 g of  $\text{CaCO}_3$  in the Conc. HCl and the solution is made up to 500 mL with distilled water. 50 mL of the prepared solution requires 30 mL of EDTA solution for titration using an EBT indicator. 50 mL of sample hard water requires 25mL of EDTA solution and after boiling and filtering 50 mL of the sample hard water requires 8 mL of EDTA. Calculate the total, permanent and temporary hardness of the water sample. (5M)





ii) Reducing the temperature of boiler feed water is the correct route to get rid of  $\text{CaSO}_4$ . Give the reason. Besides is there any other path to remove the calcium sulphate scale? (5M)

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(i) On burning 0.88 g of a solid fuel in a bomb calorimeter, the temperature of 3,700 g of water increased from 27.5°C to 30.1°C. The water equivalent of the calorimeter and latent heat of steam is 390.0 g of and 587.0 cal/g respectively. If the fuel contains 0.85% hydrogen, calculate its gross and net calorific value. (5M)

(ii) The coconut shells are converted into coke and how will you find the calorific value of the same? (5M)

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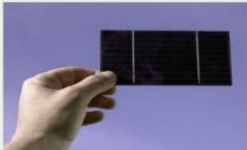
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(i) Identify the possible metallic coating in the inner part of food storage containers for the protection of its surface from corrosion. Justify your answer. (5M)



(ii) Discuss the thin film coating process adopted in ZnO coating on solar cells. (5M)



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Question : 5 of 7

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Explain the construction and function of a battery used in laptops nowadays.

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