5 (a) (i) Define *capacitance*.

For Examiner's Use

.....

.....[1]

(ii) A capacitor is made of two metal plates, insulated from one another, as shown in Fig. 5.1.

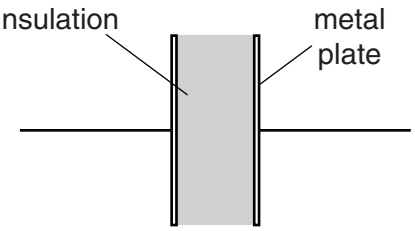

Fig. 5.1

Explain why the capacitor is said to store energy but not charge.

.....

.....

.....

.....

.....[4]

(b) Three uncharged capacitors X, Y and Z, each of capacitance 12 μF, are connected as shown in Fig. 5.2.

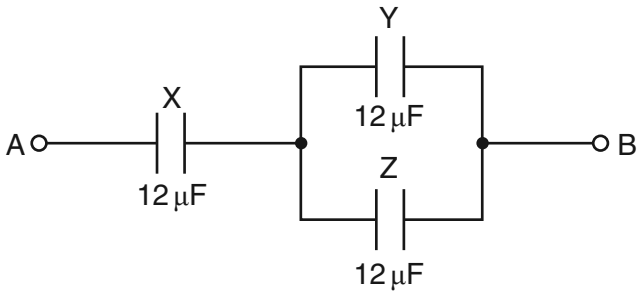

Fig. 5.2

A potential difference of 9.0 V is applied between points A and B.

(i) Calculate the combined capacitance of the capacitors X, Y and Z.

capacitance = ... μF [2]

(ii) Explain why, when the potential difference of 9.0 V is applied, the charge on one plate of capacitor X is 72 μC.

.....

.....

.....[2]

(iii) Determine

1. the potential difference across capacitor X,

potential difference = ... V [1]

2. the charge on one plate of capacitor Y.

charge = ... μC [2]

[Turn over