Back of chapter on neurones – question answers

(a) (i) A – 1;
B – 4;
C – 2; [3]

(ii) X: anywhere on membrane of post-synaptic neurone;
Y: on myelin sheath; [2]

(b) Synaptic knob only at one end of neurone/transmitter substance on one side of synapse only/receptors on one side only/location of receptors; [1]

3 (a) (i) Post synaptic membrane; [1]

(ii) Any three from

- (binding with ACh receptor sites) causes depolarisation of the post synaptic membrane
- inside the post-synaptic membrane becomes positive/influx of sodium ions through post synaptic membrane
- an excitatory post-synaptic potential (EPSP) occurs
- if a threshold is reached (e.g. enough sodium enter) an action potential occurs [3]

(iii) Post synaptic nerve cell remains in an excited state/continuous stimulation of post synaptic membrane/less summation is needed to transmit across the synapse; [1]

(b) (i) Block the ACh receptor sites/blocks channels which allow movement of ions across the membrane/induce the entry of negative ions (Cl^-)/induce the removal of positive ions (Na^+/K^+)/other appropriate response; [1]

(ii) Any two from

- depolarisation is less likely to take place
- prevents threshold being reached
- thus an action potential is less likely to be created/rendering the nerve less capable of carrying an impulse [2]

(iii) Increased reaction times/loss of motor control/may lead to dangerous behaviour/less pain felt; [1]