H5 The transport system – *summary of mark schemes*

H.5.1	Explain the events of the cardiac cycle, including atrial and ventricular systole and diastole, and heart sounds. *Mark Schemes* A. SA node fires (electrical) signal throughout walls of atria to begin cycle;causing atria to undergo systole; B. when ventricle 70% / almost full; C. AV (atrio ventricular) valve opens and blood fills ventricle (to maximum) / atrial systole; D. pressure increase in ventricle closes AV valve / ventricular systole; E. SA signal reaches atrioventricular node; A. AV node fires; B. which spreads signal throughout (Purkinje fibres); C. Purkinje fibres carry impulses to all areas of ventricles for simultaneous firing; D. causing ventricles to undergo systole; E. pressure increase causes semilunar valve to open; F. blood pumped from ventricle to aorta / systole sound / ventricular diastole; G. atrioventricular valves slap shut; H. causing "lub" sound; I. after ventricles are emptied semilunar valves close; J. causing "dub" sound; K. atrioventricular valves open; L. ventricles begin diastole and start filling; M. all four chambers are in diastole and filling; N. cycle repeats;
H.5.3	Outline the mechanisms that control the heartbeat, including the roles of the SA (sinoatrial) node, AV (atrioventricular) node and conducting fibres in the ventricular walls. *Mark Schemes* A. myogenic / initiated in heart muscle itself; B. SA node / pacemaker sends waves of excitation / impulse to atria; C. stimulus to the AV node; D. conducting fibres / bundle of His / Purkinje fibres conduct impulses to lower ventricles; E. moderated by ANS / vagus nerve / parasympathetic;
H.5.5	Discuss factors that affect the incidence of coronary heart disease. *Mark Schemes* F. hypertension / high blood pressure; G. old age leads to less flexible blood vessels; H. high salt diet / excessive amounts of alcohol / stress can also affect coronary heart disease; I. genetic – some people predisposed for high cholesterol levels / high blood pressure; J. age – older people greater risk / less elasticity in arteries; K. sex – males at great risk than females; L. risk in females increases post-menopause because of fall in estrogen level; M. being male (more risk than being female) because of less estrogen; N. smoking – constricts blood vessels / increases blood pressure / heart-rate / decreases oxygenation of heart muscle; O. diet – increases fat / cholesterol / LDL in blood / leads to plaque formation in arteries; P. exercise – lack of exercise increases risk; Q. but excessive exercise can be dangerous; R. obesity – increase in blood pressure / leads to plaque formation in arteries;