Nerves

With respect to nerves		
Schwann cells make myelin	T	
There are Schwann cells in the CNS	F	oligodendrocytes.
Unmyelinated cells are covered by Schwann cells	T	
The initial segment is not covered by Schwann cells	T	
The AP is generated in the initial segment	T	
Ap's in neurones are all or none	T	
The nerve ending always produces the synaptic transmitter	F	nucleus, cell body

With respect to excitation and conduction		
APs can be are only generated by electrical stimulation	F	chem, mechan
Nerves are good conductors of electricity	F	
Conduction is a passive process	F	
For a given nerve the conduction is at a constant amplitude and a constant velocity	T	
There is a potential difference of 70mv along the length of a nerve	F	
All cells have a RMP	T	
The firing level is approx 7-15 mv	T	
The absolute refractory period is the first 1/3 of the AP	T	→ while Na^+ channels are open.
After hyperpolarization is about -85mv	T	
Myelin increases the spread of conduction by approx X10	F	
Nerves only conduct in one direction	F	
The upstroke of the AP is due to opening of Ca channels	F	Na channels
Low extracellular Na has little effect on the RMP	T	low permeability → No Δ in [ ]'s
Low ec Na decreases the size of the AP	T	
Inc ec K+ decreases the RMP	T	
Inc ec Ca++ decreases the RMP	T	stabilises

With respect to nerves		
Diameter is proportional to conduction velocity	F	
Hypoxia, pressure, local anaesthetic affect nerves selectively	T	
Pressure affects preferentially type A	T	
Hypoxia preferentially affects type B	T	
Local anaesthetic preferentially affects type c	T	
Proprioceptive fibres are large	T	
Local anaesthetic affects pain more than touch	T	

MCQ question *

Neuromuscular junctions		
The arrival of the AP causes an increase in Ca permeability at the synapse	T	
The AP is transmitted to the endplate via exocytosis of Ach containing vesicles	T	
About 10000 vesicles are released with each AP	F	60 vesicles 10 000 molecules
Ach binds to the motor endplates which increases Na and K conductance	T	
Ach is mainly removed by diffusion and uptake into the synapse	F	acetylcholinesterase
Myasthenia gravis is due to increased destruction of ACh	F	Ab's to receptor
Lack of acetylcholinesterase causes what condition	Scoline / SUX apnoea	

NA. not Ach.

With respect to Stretch reflexes

Muscle spindles are arranged in series with muscles	F	
Bag shaped muscle spindles are activated by strech	T	
The affector nerve is 1A for spindles	T	
Muscle spindles are monosynaptic in the spinal cord	T	
The withdrawal reflex is monosynaptic	F	
Golgi tendon organs are arranged in parallel with the muscle	F	
Golgi tendon organs have a monosynaptic arc	F	
The 1a and 1b fibres enter the spinal cord via the DRG	T	

Nerves

With respect to nerves		
Schwann cells make myelin	T	✓
There are Schwann cells in the CNS	F	✓
Unmyelinated cells are covered by Schwann cells	T	✓
The initial segment is not covered by Schwann cells	T	✓
The AP is generated in the initial segment	T	✓
Ap's in neurones are all or none	T	✓
The nerve ending always produces the synaptic transmitter (body)	F	✓

With respect to excitation and conduction		
APs can be are only generated by electrical stimulation	F	✓
Nerves are good conductors of electricity	F	✓
Conduction is a passive process	T	✓
For a given nerve the conduction is at a constant amplitude and a constant velocity	T	✓
There is a potential difference of 70mv along the length of a nerve	F	✓
All cells have a RMP	T	✓
The firing level is approx 7-15 mv	T	✓
The absolute refractory period is the first 1/3 of the AP	T	x
After hyperpolarization is about -85mv	T	✓
Myelin increases the spread of conduction by approx X10	F	✓
Nerves only conduct in one direction	F	
The upstroke of the AP is due to opening of Ca channels	F	✓
Low extracellular Na has little effect on the RMP	F	
Low ec Na decreases the size of the AP	T	
Inc ec K+ decreases the RMP	F	
Inc ec Ca++ decreases the RMP	F	

With respect to nerves		
Diameter is proportional to conduction velocity	~~T~~ F	
Hypoxia, pressure, local anaesthetic affect nerves selectively	T	
Pressure affects preferentially type A	T	
Hypoxia preferentially affects type B	T	
Local anaesthetic preferentially affects type c	T	
Proprioceptive fibres are large	T	
Local anaesthetic affects pain more than touch	T	

Pathology MCQs Week 6

Regarding emboli, which of the following statements is TRUE?

Answer A	Large pulmonary emboli may cause death when more than 60% of the total pulmonary vasculature is occluded
Answer B	Small emboli may cause infarction because they impact on peripheral segments of lung
Answer C	80-85% of systemic emboli arise from thrombi within the heart often secondary to AMI
Answer D	Medium sized emboli that occlude moderate sized arteries induce haemorrhages
Answer E	systemic emboli lodge in lower extremities, brain, upper limbs and viscera in descending order

With regard to platelets:

Answer A	The link between the von Willebrand factor and the platelet surface receptors is the only known way to stabilize the initial platelet adhesion against the high shear forces of flowing blood.
Answer B	Thromboxane A2 and ADP, released from the alpha granules, are potent mediators of platelet aggregation.
Answer C	Platelet secretion and aggregation follow contraction.
Answer D	The primary haemostatic plug is anirreversibly fused mass of platelets.
Answer E	Nitric oxide activates platelet aggregation.

Bacterial wall lipopolysaccaride (endotoxin):

Answer A	At low doses predominately activates neutrophils.
Answer B	When injected, produce all the cellular and haemodynamic effects of septic shock.
Answer C	Is responsible for approximately 30% of cases of septic shock.
Answer D	Can directly activate the coagulation cascade.
Answer E	Stimulate TNF and IL-1 production in damaged endothelial cells.