

Trial Exam 1

1. all of the following pertain to reversible cell injury except
 - a. generalised swelling
 - b. myelin figures
 - c. clumping of nuclear chromatin
 - d. autophagy of lysosomes
 - e. dispersion of ribosomes
2. all of the following may be mechanisms of membrane damage in ischaemia except
 - a. decreased cytosolic calcium
 - b. formation of free radicals
 - c. protease activation
 - d. decreased ATP
 - e. decreased phospholipid synthesis
3. which of the following is correct regarding pyknosis
 - a. it refers to fading of the nuclear chromatin basophilia
 - b. it refers to the nucleus undergoing fragmentation
 - c. it is characterised by nuclear shrinkage and increased basophilia
 - d. it refers to swelling of the mitochondria
 - e. it usually occurs in reversible cell injury
4. which of the following is not a feature of apoptosis
 - a. it can be physiological and pathological
 - b. apoptotic bodies may be present
 - c. gene activation may occur
 - d. chromatin condensation may occur
 - e. inflammation may occur
5. which is incorrect regarding dystrophic calcification
 - a. it may occur in advanced atherosclerosis
 - b. it may occur on the mitral valve
 - c. it almost always reflects some derangement of calcium metabolism
 - d. it may occur in a previous area of trauma
 - e. all of the above are incorrect
6. which of the following is correct regarding the cell cycle
 - a. stable cells are usually in G0 phase
 - b. permanent cells are usually in S phase
 - c. stable cells do not enter the G1 phase
 - d. parenchymal cells of glandular organs are likely to be found in the S phase
 - e. all of the above
7. which of the following is not associated with metaplasia
 - a. cigarette smoking
 - b. a stone in the common bile duct
 - c. vitamin A excess
 - d. Barrett's oesophagus
 - e. Repetitive injury
8. which of the following is a mechanism of vascular leakage
 - a. endothelial contraction
 - b. junctional retraction
 - c. direct injury
 - d. leukocyte dependent leakage
 - e. all of the above

9. which is correct regarding the sequence of leukocyte events in inflammation
- selectins are involved in transmigration of leukocytes
 - integrins are involved in rolling of leukocytes
 - ICAM-1 is a selectin
 - neutrophils predominate in the inflammatory infiltrate in the first 6 hours only
 - neutrophils are replaced by monocytes in 24-48 hours
10. which of the following is NOT a newly synthesised chemical mediator of inflammation
- serotonin
 - prostaglandins
 - leukotrienes
 - platelet activating factor
 - nitric oxide
11. which is correct regarding the complement activation pathways
- C4-8 = membrane attack complex
 - C4b2a3b = alternative pathway C5 convertase
 - C3bBb3b = the classical pathway C5 convertase
 - Factor D is important in the alternative pathway
 - C4b2a = the alternative pathway C3 convertase
12. which of the following is true of arachidonic acid metabolites
- thromboxane A₂ causes vasodilation
 - Prostacyclin promotes platelet aggregation
 - Indomethacin inhibits phospholipases
 - PGE₂ potentiates oedema
 - Steroids inhibit cyclo-oxygenase
13. IL-1 and TNF cause
- Fever
 - Increased sleep
 - Procoagulant activity
 - Increased prostaglandin synthesis
 - All of the above
14. in regard to nitric oxide production
- it is produced by endothelial cells
 - it is produced by macrophages
 - it is produced by specific neurons in the brain
 - it is synthesised from L-arginine, molecular oxygen and NADPH by the enzyme nitric oxide synthetase
 - all of the above
15. regarding the timing of events during wound healing by first intention
- the epidermis at its cut edges thickens as a result of mitotic activity of basal cells **within 24 hours**
 - neutrophils have largely been replaced by macrophages **within 48 hours**
 - the incisional space is filled with granulation tissue by **day 3**
 - leukocyte infiltrate oedema and increased vascularity have largely disappeared by **day 7**
 - neutrophils appear at the margins of the incision by **day 2**
16. which is true in regard to oedema formation
- a hydrostatic pressure of 35 mmHg is normal for the venular end of the capillary
 - a hydrostatic pressure of 40mmHg would favour oedema formation if this was at the arteriolar end of the capillary
 - the colloid osmotic pressure is greater at the arteriolar end than at the venular end of the capillary
 - colloid osmotic pressure of plasma is approximately 10 mmHg
 - none of the above are correct

17. with regard to the endothelial thrombotic-antithrombotic balance, which of the following factors does not have antithrombotic properties
- nitric oxide
 - alpha₂-macroglobulin
 - protein C
 - tissue factor
 - Antithrombin III
18. which of the following favours platelet aggregation
- thrombin
 - ADP
 - Thromboxane A₂
 - Serotonin
 - All of the above
19. which if the following reflects the order of frequency of DVT from most frequent site to least frequent site
- deep calf, femoral, popliteal, iliac
 - femoral, deep calf, popliteal, iliac
 - iliac, popliteal, deep calf, femoral
 - iliac, femoral, popliteal, deep calf
 - popliteal, deep calf, iliac, femoral
20. with regard to pulmonary embolism, which of the following is incorrect
- 60-80% of pulmonary emboli are clinically silent
 - Pulmonary infarction occurs in 10-15% of cases
 - Sudden death, acute right heart failure or cardiovascular collapse may occur when more than 30% of the pulmonary vasculature is obstructed by a large embolus
 - 10-15% of cases may result in centrally located pulmonary haemorrhage
 - Multiple emboli uncommonly lead to pulmonary hypertension
21. regarding the pathogenesis and stages of shock
- stage 1 = the progressive stage
 - in stage 1 there is decrease tissue perfusion
 - in stage 2 there is cellular membrane injury
 - decreased tissue perfusion begins in stage 3
 - contraction bands may be present in the heart in stage 2
22. which of the following is correct regarding hypersensitivity reactions
- Goodpasture's syndrome = type II
 - Systemic lupus erythematosus = type IV
 - Contact dermatitis = type II
 - Transplant rejection = type II
 - Blood transfusion reaction = type I
23. which of the following is a primary mediator in type I hypersensitivity reactions
- prostaglandin D2
 - PAF
 - Leukotrienes B4, C4, D4
 - Secreted cytokines
 - Neutrophil chemotactic factor
24. which of the following is not an "antigen-disease pair" with regard to type II hypersensitivity reactions
- streptococci – glomerulonephritis
 - actinomycetes – farmers lung
 - Treponema pallidum – polyarteritis nodosa
 - nuclear antigens – SLE
 - immunoglobulins – rheumatoid arthritis

25. The HIV molecule that binds the CD4 molecule of the leukocyte is
- the p24 antigen
 - the gp41 glycoprotein
 - the gp120 glycoprotein
 - the p18 protein
 - the gag protein
26. Pneumocystis carinii pneumonia is a presenting feature in what percentage of HIV infections
- 20%
 - 30%
 - 50%
 - 75%
 - 90%
27. regarding bacterial endotoxin
- it is a structural component of the inner wall of Gram negative bacteria
 - the lipid-A component is the same in all Gram negative bacteria
 - the carbohydrate chain (O-antigen) is the same in all Gram negative bacteria
 - the O-antigen causes all the biological activities of bacterial Endotoxin
 - bacterial endotoxin is composed of 2 components
28. which of the following is incorrect regarding Mycobacterium tuberculosis
- cord factor is present on the surface of virulent strains
 - sulfatides prevent the fusion of phagosomes and macrophages
 - LAM inhibits macrophage activation by IFN- \square
 - on initial exposure to the organism the inflammatory reaction is granulomatous
 - none of the above
29. with regard to tuberculosis
- the Ghon complex results from secondary infection
 - the Assman complex arises from secondary infection
 - the Ghon complex occurs in the apex of the lung
 - the granulomas of secondary tuberculosis only occur in the lung apices
 - tuberculosis does not affect the lower lobes of the lung
30. regarding Staphylococcus aureus, which of the following is incorrect
- an enterotoxin may be associated with food poisoning
 - a laminin receptor which is similar to metastatic tumour cells may be present
 - an alpha toxin, beta toxin and delta toxin may be present
 - grapelike clusters of the organism may form
 - TSST-1 may be involved in staphylococcal scalded skin syndrome
31. which is incorrect regarding Clostridium species and infection
- Clostridia are Gram positive cocci
 - They are generally spore-forming
 - Tetanospasmin may be produced
 - They produce the most potent toxin known
 - Alphatoxin causes myonecrosis
32. regarding acute radiation syndrome; a dose of 180rem would be consistent with
- severe prodromal symptoms of nausea, vomiting and diarrhoea
 - acute confusion
 - essentially 100% survival
 - severe neutrophil and platelet depression in 3-5 weeks
 - evidence of gastrointestinal damage

33. which of the following is a major risk factor for arteriosclerosis
- obesity
 - male gender
 - family history
 - hypertension
 - oral contraceptive use
34. in descending order of frequency, the areas most heavily involved in atherosclerotic plaques are
- lower abdominal aorta; coronary arteries; popliteal arteries; descending thoracic aorta; internal carotid arteries
 - coronary arteries; descending thoracic aorta; lower abdominal aorta; popliteal arteries; internal carotid arteries
 - lower abdominal aorta; descending thoracic aorta; coronary arteries; internal carotid arteries; popliteal arteries
 - lower abdominal aorta; internal carotid arteries; descending thoracic aorta; coronary arteries; popliteal arteries
 - lower abdominal aorta; descending thoracic aorta; internal carotid arteries; coronary arteries; popliteal arteries
35. which content is common to both the necrotic centre and the fibrous cap of the atherosclerotic plaque
- cholesterol crystals
 - smooth muscle cells
 - macrophages
 - foam cells
 - cell debris
36. the current hypothesis for the pathogenesis of atherosclerotic plaques is
- the cellular proliferation hypothesis
 - the organisation and repetitive growth hypothesis
 - the response to injury hypothesis
 - the monoclonal hypothesis
 - the insudation of plasma protein and lipids hypothesis
37. regarding giant cell arteritis, which of the following is incorrect
- it may involve medium size arteries
 - it may involve small size arteries
 - it may involve the aortic arch
 - it may involve the vertebral arteries
 - all of the above
38. acute myocardial infarction commonly results from
- a thrombus forming on an atheromatous plaque which was occluding the lumen by 90%
 - an 80% stenotic plaque which has become disrupted
 - disruption of a moderately stenotic (50-75%) plaque
 - spasm of a coronary artery associated with an atherosclerotic plaque
 - acute haemorrhagic dissection into an atheromatous plaque occluding the lumen
39. regarding endocarditis
- acute endocarditis usually occurs on a previously normal heart valve
 - streptococci usually affect normal heart valves
 - complete heart block may occur secondary to a ring abscess
 - the most common contributor to rheumatic heart disease is rheumatic fever
 - candida endocarditis never affects medium sized arteries with embolisation

40. which of the following conditions would be least likely to be associated with vegetations on the heart valves
- rheumatic heart disease
 - bacteraemia with *Staphylococcus aureus*
 - a debilitated patient with metastatic adenocarcinoma
 - carcinoid syndrome
 - systemic lupus erythematosus
41. regarding immuno-haemolytic anaemia
- in the warm antibody type, the antibody is usually IgM
 - in the cold type the antibodies are most active between 5-10°C
 - mycoplasma pneumonia tends to cause the warm antibody type
 - lymphoma only causes the warm antibody type
 - IgA antibodies may occur in the warm antibody type
42. which of the following occur in DIC
- microvascular thrombosis
 - microangiopathic haemolytic anaemia
 - activation of plasmin
 - proteolysis of clotting factors
 - all of the above
43. which of the following would be most likely to cause obstructive atelectasis in the lung
- bronchial neoplasm
 - large pleural effusion
 - asthma
 - mesothelioma
 - ARDS
44. a pulmonary infarction is most likely to occur in which of the following settings
- a patient with COPD
 - a 25 yo girl on the oral contraceptive pill
 - a 40 yo man who has just had a long plane flight
 - a patient with acute bacterial endocarditis involving the aortic valve
 - a 20 yo man post operation on his right femur
45. regarding emphysema
- centriacinar emphysema occurs mainly in the lower lobes
 - centrilobular emphysema principally affects the respiratory bronchioles
 - panacinar emphysema affects only the alveoli
 - α_1 -antitrypsin deficiency causes mainly centriacinar emphysema
 - panacinar emphysema more commonly affects the posterior margins and the lower zones of the lung
46. which of the following would not be consistent with chronic bronchitis
- squamous metaplasia of the bronchial epithelium
 - goblet cell metaplasia
 - mucous plugging
 - a Reid index of 0.3
 - bronchiolitis obliterans
47. which of the following is not consistent with the late phase reaction of asthma
- major basic protein causing epithelial damage
 - major basic protein causing airway constriction
 - histamine release from basophils
 - the process beginning 4-8 hours after the immediate reaction
 - none of the above

48. Curshmann's spirals mainly contain
- Eosinophils
 - Neutrophils
 - Epithelium
 - Goblet cells
 - Mast cells
49. what is the order of the progressive stages of lobar pneumonia
- red hepatisation, grey hepatisation, congestion, resolution
 - grey hepatisation, congestion, red hepatisation, resolution
 - grey hepatisation, red hepatisation, congestion, resolution
 - congestion, red hepatisation, grey hepatisation, resolution
 - red hepatisation, congestion, grey hepatisation, resolution
50. which of the following is incorrect of pulmonary abscess
- clubbing of the fingers and toes may appear within a few weeks of the onset of an abscess
 - underlying carcinoma is present in 10-15% cases
 - it may be caused by type III pneumococcus
 - mixed infections commonly occur
 - those due to aspiration are more commonly multiple
51. which of the following is incorrect regarding asbestos exposure
- mesothelioma may occur
 - bronchogenic carcinoma may occur
 - pleural plaques containing asbestos bodies may occur
 - diffuse visceral pleural fibrosis may occur
 - asbestos bodies are asbestos fibres coated with an iron-containing proteinaceous material
52. regarding bronchogenic carcinoma
- 20% of cases are squamous cell carcinoma
 - 20% of cases are adenocarcinoma
 - 20% of cases are large cell carcinoma
 - 20% of cases are small cell carcinoma
 - Squamous cell carcinoma is more common than adenocarcinoma
53. regarding bronchogenic adenocarcinoma which of the following is incorrect
- it is the most common type of lung cancer in women
 - it is the most common type of lung cancer in non-smokers
 - it tends to be more peripherally located in the lung
 - it may be associated with areas of scarring in the lung
 - they tend to be larger than squamous cell carcinomas
54. regarding lung carcinoma
- small cell carcinoma has a better prognosis than squamous cell carcinoma
 - hypercalcaemia is most likely to be associated with squamous cell carcinoma
 - small cell carcinoma is not sensitive to radiation and chemotherapy
 - a tumour of 3cm in diameter at the carina would be designated T1 in terms of staging
 - a localised solitary squamous cell tumour less than 3cm in diameter would have an approximately 80% 5 year survival post resection
55. which is incorrect regarding inflammatory bowel disease
- ulcerative colitis results in skip lesions
 - the appendix may be involved in both Crohn's disease and ulcerative colitis
 - ulcerative colitis always involves the rectum
 - ulcerative colitis affects the mucosa and sub-mucosa
 - crypt abscesses may occur in Crohn's disease

56. which of the following is incorrect regarding cirrhosis
- parenchymal nodules are created by regeneration of hepatocytes
 - nodularity is a requisite for the diagnosis
 - fibrosis once developed is generally irreversible
 - focal injury with scarring occurs
 - the terms micronodular and macronodular should not be used as a primary classification
57. regarding viral hepatitis
- the incubation of hepatitis B is up to 3 months
 - chronic hepatitis occurs in 1% of cases in hepatitis B infection
 - chronic hepatitis occurs in greater than 50% of cases in hepatitis C infection
 - there is increased incidence of hepatitis D virus in pregnant women
 - hepatocellular carcinoma can occur post hepatitis A virus infection
58. which of the following is incorrect regarding calculi
- cholesterol stones arise exclusively in the gallbladder
 - calculi may be found in the small intestine
 - Biliary calculi are radio-opaque in 10-15%
 - Renal magnesium-ammonium-phosphate stones are favoured by an acidic urine
 - Uric acid is relatively insoluble in acidic urine
59. which of the following is true regarding acute tubular necrosis
- the ischaemic type tends to cause extensive necrosis continuously along the proximal tubular segments
 - there is an increased vulnerability to infection during the recovery phase of acute tubular necrosis
 - acute tubular necrosis always causes oliguria
 - an acidic urine improves the prognosis
 - the toxic type does not involve the distal tubule
60. a space occupying lesion in the temporal lobe or more lateral portions of the cerebral hemisphere may lead to
- Duret haemorrhages
 - the compression of the contralateral cerebral peduncle against the Kernohan notch
 - aqueductal compression
 - haemorrhagic infarction of the occipital lobe
 - all of the above
61. which of the following is an autosomal recessive disorder
- neurofibromatosis
 - Marfan syndrome
 - Polycystic kidney disease
 - Haemochromatosis
 - Huntington's disease
62. The CD4 count that is diagnostic of AIDS is
- 500
 - <500
 - <350
 - <200
 - <100
63. regarding the invasion of epithelial basement membranes by tumour cells; which of the following is used to bind tumour cell receptors
- fibronectin
 - laminin
 - collagen
 - vitronectin
 - all of the above

64. regarding cystic fibrosis

- a. the cystic fibrosis gene is located on chromosome 16
- b. there is a deficiency of an encoded protein that serves as a sodium channel
- c. the cystic fibrosis gene is located on chromosome 7
- d. there is a deficiency of an encoded protein that serves as a chloride channel
- e. both C&D are correct

1. b	2. a	3. c	4. e	5. c	6. a
7. c	8. e	9. e	10. a	11. d	12. d
13. e	14. e	15. all wrong	16. b	17. d	18. e
19. a	20. c	21. e	22. a	23. e	24. c
25. c	26. c	27. b	28. d	29. b	30. e
31. a	32. c	33. d	34. a	35. d	36. c
37. e	38. c	39. c	40. d	41. e	42. e
43. c	44. a	45. b	46. d	47. e	48. c
49. d	50. e	51. c	52. d	53. e	54. b
55. a	56. d	57. c	58. d	59. b	60. e
61. d	62. d	63. e	64. e		