Quiz answers (pt.2)

Round one: Haematology
1. British Journal of Haematology (1976)
2. Thomas McCrae, 1905 (not John Auer, 1906)
3. A rare autosomal disease with selective B12 malabsorption and proteinuria
4. George Kohler and Cesar Milstein (1976)
5. To identify/quantify neutrophil hypersegmentation
6. Paroxysmal nocturnal haematuria
7. Plasma cells – myeloma
8. Prekallikrein
9. Thalassaemia – sea-blood
10. Vacuolation of granulocytes and monocytes

Round two: Microbiology
1. KPC, NDM, VIM, IMP, OXA-48-like
2. N, N, N′, N′-tetramethyl-p-phenylenediamine dihydrochloride
3. Vancomycin, Colistin, Amphotericin B or Nystatin, Trimethoprim
4. *Francisella tularensis*
5. *Haemophilus spp., Aggregatibacter actinomycetemcomitans, Cardiobacterium hominis, Eikenella corrodens, Kingella spp.*
6. Olive Oil
7. Gag, pol, env
8. Inhibit bacterial cell wall synthesis
9. *Fusobacterium necrophorum*
10. Acridine orange

Round three: Biochemistry
1. Urea, Creatinine, Potassium, Sodium and eGFR
2. High performance liquid chromatography
3. Diabetes
4. IgA, IgG, IgM
5. Thyroid stimulating hormone
6. Lactate dehydrogenase
7. Freezing point depression
8. Capillary zone electrophoresis
9. Sodium
10. Insulin and C-peptide

Round four: Cellular pathology
1. Reticulin fibres are argyrophilic. Although when exposed to a silver solution they will reduce small quantities of silver these are sub-microscopic and a reducing agent is required to visualise them. When this reducing agent is added the sub-microscopic particles of silver attached to the reticulin fibres will act as a catalyst, causing accumulation of visible silver deposits.
2. This is a Perls stain, the arrow is indicating asbestos bodies; asbestos bodies form in the lungs of individuals who have inhaled asbestos fibres, they consist of

asbestos fibres coated with an iron containing protein. Asbestos exposure/inhalation is now known to cause mesothelioma.
3. This has the appearance of a Reed-Sternberg cell, indicating Hodgkin's Lymphoma. To confirm the diagnosis immunohistochemistry should be carried out. The IHC panel recommended by the RCPath is as follows; CD3, CD20, CD45, CD79a, PAX5, Ki67, CD15, CD30, OCT2, BOB1, Fascin, PU1, CD21, CD4, PD1, CD57, ICOS, and EMA.
4. The earliest widely used form of digital pathology, telepathology utilises live "robotic" microscopes to allow remote assessment of images in real time. However, the image is not retained. In contrast to this whole slide imaging (or virtual microscopy) is performed with a dedicated scanner that is used to capture a digital image of the whole slide for later review at a remote location (the image can be saved for as long as required and be shared worldwide with multiple experts).
5. Image Analysis utilises various forms of artificial intelligence to automate certain aspects of the diagnostic process. There are currently validated (CE-IVD) apps to automate counting of ER, PR, Her2, Ki-67, and p53. There are also validated apps to detect metastasis, invasive tumours. With more apps being developed and validated every year, this can potentially boost productivity, and improving reproducibility in the reporting process.
6.

A. Ileum (ileo-caecal valve divides the small from the large intestine)
B. Appendix
C. Caecum
D. Ascending colon
E. Transverse colon
F. Descending colon
G. Sigmoid colon
H. Rectum
I. Anus

7. EBV has been linked to Burkitt's lymphoma, Hodgkin's lymphoma, nasopharyngeal carcinoma, and a distinct subtype of gastric carcinoma; in addition there is ongoing research into the relationship between EBV and other solid tissue tumours such as breast cancer, however, this remains controversial – although a strong relationship exists between EBV infection and breast cancer risk, it is still unclear if it is a causative agent.
8. *Helicobacter pylori* was shown to be the causative agent behind the vast majority of peptic ulcer cases. This is a helically shaped bacterium. Some of the common special stains that can be used to identify this bacterium include a modified Giemsa stain, the Crystal Violet acetate method, the Warthin-Starry method, and the Steiner stain.
9. Trim off the mesenteric fat; submit a longitudinal section from the tip and a transverse section from the base in one cassette, representative serial slices from the rest of the appendix should ideally be submitted in another cassette – although this is not always required.
10.The biopsy shows Invasive Ductal Carcinoma; recommended follow-up testing should include ER, PR, and Her2 to determine therapeutic options

(Tamoxifen/Herceptin). Given the patient's family history and Jewish decent BRCA1 should also be requested (Ashkenazi Jews have an increased incidence of inheriting a germline mutation of the BRCA1 gene – located on chromosome 17q21) – although if this was a BRCA1 positive tumour greater lymphocytic involvement would be expected.