READING TEST 2

PART A

TIME: 15 minutes

Look at the four texts, A-D, in the separate Text Booklet.
For each question, 1-20, look through the texts, A-D, to find the relevant information.
Write your answers on the spaces provided in this Question Paper.
Answer all the questions within the 15-minute time limit.
Your answers should be correctly spelt.

Text A

The mechanism of polycythemia in primary familial and congenital polycythemia (PFCP) is due to the truncated EpoR (genetic mutation) in which there is no inhibition of signalling pathways. In all conditions of hypoxia HIF-1 is responsible for the polycythemia. Some patients with chronic lung disease or congenital cyanotic heart disease do not develop polycythemia in spite of hypoxia, the mechanism of which is not very clear. Polycythemia in smokers is due to increased blood carbon monoxide (CO). CO displaces one molecule of O2 from hemoglobin and converts it to carboxyhemoglobin (COHb). COHb has 200 times greater affinity than oxygen. This results in not only occupation of one of the heme groups of haemoglobin but also increase in the oxygen affinity of the remaining heme group resulting in tissue hypoxia. Polycythemia accompanying kidney and liver diseases and neoplastic disorders, is usually associated with increased EPO production. In tumours EPO production is shown to be autonomous of hypoxic stimuli.production is shown to be autonomous of hypoxic stimuli.

Text B

The molecular basis of post-transplantation erythrocytosis (PTE) remains unclear. It is found in 5-10% of renal allograft recipients developing within 8-24 months following a successful renal transplantation. It resolves spontaneously within 2 years in about 25% of patients. In congenital secondary polycythemia, mutations in the haemoglobin can lead to increased oxygen affinity leading to decreased oxygen

delivery and compensatory polycythemia. A rare mechanism in this group is 2, 3 BPG deficiency. This compound is synthesised in red blood cell and binds to haemoglobin reducing its affinity for oxygen. Its absence leads to increased affinity of haemoglobin for oxygen resulting in a lifelong hypoxic stimulus and erythrocytosis. The fetal haemoglobin has high oxygen affinity and many of the neonates may have markedly elevated hematocrits. Polycythemia vera rises from the transformation of a single hematopoietic stem cell with a selective growth advantage that gradually becomes the predominant myeloid progenitor. Recently a somatic mutation is detected in a gene on chromosome 9p in a majority of polycythemia vera patients. This gene encodes for tyrosine kinase JAK. This somatic mutation transforms this kinase into a constitutively active form and seems to be responsible for the uncontrolled proliferation of the erythroid cells.

Text C

Clinical Approach

Symptoms of polycythemia are very nonspecific like a headache, weakness, pruritus, dizziness, sweating and visual disturbances. Some of the patients are seen initially with complications of polycythemia like thrombosis (cerebral, peripheral) and haemorrhage. Thrombosis may occur at unusual sites like hepatic vein. Polycythemia may be diagnosed when Budd Chiari syndrome is being investigated. Hematocrit values above 51% in males and over 48% in females requires further evaluation.

Diagnostic criteria laid down by PVSG and WHO require demonstration of an elevated red cell mass as a must. This is practically not possible in most centres. So, WHO has revised the criteria (2008) for the diagnosis of PV6 .

Accordingly, there are 2 major and 3 minor criteria.

Major criteria

1. Hemoglobin level above 18.5g/dl for men and 16.5g/dl for females OR Hemoglobin or hematocrit > 99th percentile of reference range for age, sex, or altitude of residence OR elevated red cell mass >25% above mean normal predicted value.

2. Presence of JAK2 gene mutation (V617F) or other functionally similar.

Minor criteria

1. Bone marrow showing hypercellularity for age and trilineage growth (panmyelosis)

2. Subnormal Epo level

3. EEC (endogenous erythroid colonies)

Diagnostic combinations - Major criteria + one minor criterion and first major criterion + 2 minor criteria

Text D

Recommendations;

Low dose aspirin 75- 150 mg is recommended in all PV patients without history of major bleeding or gastric intolerance, based on the results of the ECLAP study. Patients with PV should be properly hydrated when they develop gastrointestinal disorders. The spent phase occurs after about 15-20 years, when the phlebotomy requirement decreases and the patient develops anaemia. The marrow fibrosis increases and spleen becomes greatly enlarged. The treatment during this phase is purely symptomatic including blood transfusions. Other treatment modalities tried are splenectomy, thalidomide and marrow transplantation in younger patients. In the future we may have new JAK2 targeted inhibitors to treat PV. Some patients may get transformed into acute leukaemia

Any form of treatment during this phase is not at all satisfactory.

Currently, management of PV depends on the risk stratification

Risk category	Age >60yrs or history of thrombosis	Cardiovascular risk factors
Low	No	No
Intermediate	No	Yes
High	Yes	

Phlebotomy is the cornerstone of low-risk patients aimed at reaching and maintaining a target hematocrit of 45% in males and 42% in females. Low dose aspirin may be added to the treatment. High-risk patients should receive myelosuppressive treatment in addition to phlebotomy. The drug of choice is hydroxyurea.PV may infrequently occur during childbearing years. There is an increased incidence of abortion in about 30% of cases. Pre-eclampsia is also common. It is very interesting that some of the women may even reduce their hematocrit. Their phlebotomy requirement is also found to be decreased. The possible explanations are the erythropoietic suppressive effect of the high estrogen levels, expansion of the plasma volume and nutritional deficiencies. If needed, the patient should be treated with phlebotomy, low dose aspirin or interferon. After delivery the blood count will drift back to the original polycythemic level.

Questions 1-7

For each question, 1-7, decide which text (A, B, C or D) the information comes from. You may use any letter more than once.In which text can you find information about;

1. Severe itching of the skin, as a symptom of various

ailments. Answer _____

2. Maintaining the ratio of the volume of red blood cells to the total volume of blood around five percent and 8 percent lesser than 50% in males and females.

Answer _____

3 .Take place during pregnancy.

Answer _____

4 .A condition arising due to shortening of the genes.

Answer_____

5 .The presence of an abnormal excess of cells.

Answer _____

6 .Bluish cast to the skin and mucous membrane.

Answer _____

7. An enzyme that can transfer a phosphate group from ATP to a protein in a

cell. Answer _____

Questions 8-14

Answer each of the questions, 8-14, with a word or short phrase from one of the texts. Each answer may include words, numbers or both.

8 .What is the term which refers to the use of the drug in the treatment of certain cancers?

Answer_____

9 .What is found in a gene on chromosome 9p in patients?

Answer _____

10 .When does a patient develop anaemia?

Answer _____

11. What is the condition in which bone marrow activity is decreased, resulting in fewer red blood cells, white blood cells, and platelets?

Answer _____

12. What leads to the formation by peripheral blood mononuclear cells from patients with polycythemia vera?

Answer _____

13 .What is the hormone produced by the kidney that promotes the formation of red blood cells by the bone marrow?

Answer _____

14. What is the recommended for treatment?

Answer _____

Questions 15-20

Complete each of the sentences, 15-20, with a word or short phrase from one of the texts. Each answer may include words, numbers or both.

15. _____ is used with other medications or radiation therapy to treat some blood disorders.

16 . _____ mutations were found to have a high correlation with abnormal heart defects.

17 ._____ cells can undergo rapid proliferation before differentiating into maturation stages.

18._____ are seen in the great majority of cases of polycythaemia.

19 .Polycythemia vera shows stable growth, majorly come into being from a single

_____stem cell.

20. In various cancerous conditions, production of _____ is recorded to be independent of hypoxic stimuli.

PART B

In this part of the test, there are six short extracts relating to the work of health professionals. For questions 1-6, choose the answer (A, B or C), which you think fits best according to the text

1 .As per the following notice, what is correct?

A Dyslipidemia in children is common.

B Young committee mostly gets affected by the disease.

C Statistics showing the curtailment ratio of the affected people.

The American Academy of Pediatrics recommends screening for dyslipidemia in children and adolescents who have a family history of dyslipidemia or premature CVD, those whose family history is unknown, and those youths with risk factors for CVD, such as being overweight or obese, having hypertension or DM, or being a smoker 1 In 2011, the NHBLI Expert Panel recommended universal dyslipidemia screening for all children between 9 and 11 years of age and again between 17 and 21 years of age 23.Analysis of data from NHANES 1999 to 2006 showed that the overall prevalence of abnormal lipid levels among youths 12 to 19 years of age was 20 3%. From 2005 to 2010, among adults with high LDL- C, age-adjusted control of LDL-C increased from 22 3% to 29 5% 25 The prevalence of LDL-C control was lowest among people who reported receiving medical care less than twice in the previous year (11 7%), being uninsured (13 5%), being Mexican American (20 3%), or having income below the poverty level (21 9%) 2.

2. Notice on debatable concepts gives information about; A

Concepts which may have direct impact on splenectomy. B

Conditions which might arise after splenectomy.

C Situations requiring great effort.

DEBATABLE Concepts of Laparoscopic splenectomy

Malignant hematologic diseases

Huge splenomegaly (> 25 cm)

Malignant splenic tumor
Pericapsular inflammation

Large lymph nodes at the splenic hilum

PHT and cirrhosis

Difficulties
â€• Technical challenge
â€• Splenic mobilization
â€• Safe access to the splenic hilum

3.The manual gives information about

A Rescue Protocol

B Emergency Care Plan

C Adjustable Properties of Powerheart AED G3

The AED protocol is consistent with the guidelines recommended by the American Heart Association (Guidelines 2005 for Cardiopulmonary Resuscitation and Emergency Cardiac Care American Heart Association; Circulation vol 112, Issue 24 Suppl. Dec. 13, 2005) and the International Liaison Committee on Resuscitation (ILCOR)). Upon detecting a shockable cardiac rhythm, the AED advises the operator to press the SHOCK button (9390E only) to deliver a defibrillation shock followed by performing 2 minutes of CPR. For the Powerheart AED G3 Automatic, upon detecting a shockable rhythm, the AED will automatically deliver defibrillation shocks followed by performing 2 minutes of CPR.

Note: In alignment with the 2005 Guidelines, the default setting for the CPR time has been set to allow for 5 cycles of 30 compressions and 2 breaths. Increasing or decreasing the CPR time setting may increase or decrease the number of actual cycles allowed during the CPR timeout period.

4.4 As per the given notice, GM levels of triglycerides is;

A Higher among people who are 20+ years.

BCommon among men.

CCommon among women.

The geometric mean level of triglycerides for American adults ≥20 years of age was 103 5 mg/ dL in NHANES 2011 to 2014. Approximately 24 2% of adults had high triglyceride levels (≥150 mg/dL) in NHANES 2011 to 2014. Among males, the age-adjusted geometric mean triglyceride level was 111 6 mg/dL in NHANES 2011 to 2014, with the following racial/ethnic breakdown: — 113 2 mg/dL for non-Hispanic white males — 86 7 mg/dL for non-Hispanic black males — 124 1 mg/dL for Hispanic males — 115 3 mg/dL for non-Hispanic Asian males

5. Pick the one that is incorrect

- GGTP (cut-off):GGTP<100; 100 â‰¤ GGTP â‰¤ 200; GGTP>200; for scores 1, 2, 3 respectively.

- Bilirubin (cut-off): Bil<1.5; 1.5 â‰¤ Bil â‰¤ 2.5; Bil>2.5; for scores 1, 2, 3 respectively.

- Albumin (cut-off): Alb>3.5; 2.5 â‰¤ Alb< 3.5; Alb<2.5; for scores 1, 2, 3 respectively.

Relationship of a liver index and its parameters to HCC aggressiveness

	β	Se(β)	p.	95% C.I
(A)				
Liver Index score	0.2462	0.0247	<0.001	0.1978 to 0.2945
(B)				
GGTP (IU/ml)	0.0013	0.0003	<0.001	0.0007 to 0.0020
Total Bilirubin (mg/dl)	0.0585	0.0140	<0.001	0.0311 to 0.0859
Albumin (g/dl)	-0.3821	0.0554	<0.001	-0.4908 to -0.2733
Platelets (x109/L)	0.0031	0.0005	<0.001	0.0021 to 0.0041

6. The given notice talks about

AFunctioning of the ultrasound.

B Detection of fetus.

C Examination of the fetus.

Ultrasound is done during pregnancy to track the development of the fetus in the mother's womb. It is not only helpful in tracking down the development but also helps to find out any fetal anomalies. Ultrasound reveals the heartbeat of the fetus, the radius of the head, the length of the hands and feet and also his/her height and weight. There are various kinds of ultrasound which can be done during pregnancy namely Transvaginal Ultrasound, 3-D Ultrasound, 4-D Ultrasound and Fetal Echocardiography. While the Sonography reports in the first trimester provides information about the fetal heartbeat, it also examines the placenta, uterus, ovaries, cervix, checks for multiple pregnancies, the sonography done in the second and third trimester reveals much important criteria like placental abruption, placenta previa, characteristics of Down's syndrome if there are any possibilities. The ultrasound in this stage also determines whether the fetus is carrying any form of congenital disease whether hereditary or non-hereditary or not.

PART C

In this part of the test, there are two texts about different aspects of healthcare. For questions 7-22, choose the answer (A, B, C or D) which you think fits best according to the text.

Text 1: Anaplasmosis

Anaplasmosis is a tick-borne disease caused by the bacterium anaplasmaphagocytophilum. It was previously known as human granulocytic ehrlichiosis (HGE) and has more recently been called human granulocytic anaplasmosis (HGA). Anaplasmosis is transmitted to humans by tick bites, primarily from the black-legged tick (Ixodesscapularis) and the western black-legged tick (Ixodespacificus). Of the four distinct phases in the tick life-cycle (egg, larva, nymph, adult), nymphal and adult ticks are most frequently associated with transmission of anaplasmosis to humans. Typical symptoms include fever, headache, chills, and muscle aches. Usually, these symptoms which occur within 1-2 weeks of a tick bite can't be known and in many cases can't even be averted. Anaplasmosis, which often can't be thwarted, is initially diagnosed based on symptoms and clinical presentation, and later confirmed by the use of specialized laboratory tests. The first line treatment for adults and children of all ages is doxycycline. Anaplasmosis and other tick-borne diseases can be obviated

Anaplasmosis is caused by the bacterium anaplasmaphagocytophilum. This organism used to be known by other names, including Ehrlichiaequi and Ehrlichiaphagocytophilum, and the disease caused by this organism has been previously described as human granulocytic ehrlichiosis (HGE). However, a taxonomic change in 2001 identified that this organism belonged to the genus anaplasma, and resulted in a change in the name of the disease to anaplasmosis. Anaplasmosis was first recognized as a disease of humans in the United States in the mid-1990's, but did not become a reportable disease until 1999. The number of anaplasmosis cases reported has increased steadily since the disease became reportable, from 348 cases in 2000, to 1761 cases in 2010. The incidence (the number of cases for every million persons) of anaplasmosis has also increased, from 1.4 cases per million persons in 2000 to 6.1 cases per million persons in

2010. The case fatality rate (i.e. the proportion of anaplasmosis patients that reportedly died as a result of infection) has remained low, at less than 1%.

The bacterium anaplasmaphagocytophilum is transmitted to humans by the bite of an infected tick. The black-legged tick (Ixodesscapularis) is the vector of A. phagocytophilum in the northeast and upper midwestern United States. The western black-legged tick (Ixodespacificus) is the primary vector in Northern California. The first symptoms of anaplasmosis typically begin within 1-2 weeks after the bite of an infected tick. A tick bite is usually painless, and some patients who develop anaplasmosis do not remember being bitten. It can be a serious illness that can be fatal if not treated correctly, even in previously healthy people.

The severity of anaplasmosis may depend in part on the immune status of the patient. Persons with compromised immunity caused by immunosuppressive therapies (e.g., corticosteroids, cancer chemotherapy, or long-term immunosuppressive therapy following an organ transplant), HIV infection, or splenectomy appear to develop a more severe disease, and case-fatality rates for these individuals are characteristically higher than case-fatality rates reported for the general population.

Because A. phagocytophilum infects the white blood cells and circulates in the bloodstream, this pathogen may pose a risk to be transmitted through blood transfusions. Anaplasmaphagocytophilum has been shown to survive for more than a week in refrigerated blood. Several cases of anaplasmosis have been reported associated with the transfusion of packed red blood cells donated from asymptomatic or acutely infected donors. Patients who develop anaplasmosis within a month of receiving a blood transfusion or solid organ transplant should be reported to state health officials for prompt investigation.

There are several aspects of anaplasmosis that make it challenging for healthcare providers to diagnose and treat. The symptoms vary from patient to patient and can be difficult to distinguish from other diseases. Treatment is more likely to be effective if started early in the course of the disease. Diagnostic tests based on the detection of antibodies will frequently appear negative in the first 7-10 days of illness. For this reason, healthcare providers must use their judgment to treat patients based on clinical suspicion alone. Healthcare providers may find important information in the patient’s history and physical examination that may aid clinical diagnosis. Information such as recent tick bites, exposure to areas where ticks are likely to be found, or history of recent travel to areas where anaplasmosis is endemic can be helpful in making the diagnosis.

Text 1: Questions 7-14

7 .According to paragraph 1, what is not anaplasmosis?

A. A bacterial disease

B. A disease that is transmitted by tick bites

C. A disease in which people suffer from muscle pain

D.A disease that canâ€™t be prevented

8 .Which word in paragraph 1 may mean â€œremovingdifficultyâ€•?

A.Averted

B. Thwarted

C.Obviated D.None

of the above.

9 .Paragraph 2 deals more with the;

10. What is not true about anaplasmosis, according to paragraph

2? A. The old name of anaplasmosis was HGE.

B. The causal agent of anaplasmosis was recorded to be

ehrlichiaequi C. HGE was renamed as anaplasmosis in the year 2001

D.Cases of anaplasmosis became known only after 2000

11 .What is not true about ticks, according to paragraph 3?

A.A tick bite is painless

B.A tick bite carries bacterium anaplasmaphagocytophilum

C. Ticks are present throughout the US

D.Black-legged ticks are present across California

12. What is the central idea of paragraph

4? A. Immune-compromised individuals

B. The effects of anaplasmosis C.

Fatality rate and anaplasmosis

D.None of the above

13 What do we find in paragraph 5?

A. Blood transfusion risks

B. Organ transplant risks

C.Blood transfusion and organ transplant risks associated with anaplasma

species D. Information about anaplasmaphagocytophilum

14 .According to paragraph 6, what is not true about

anaplasmosis? A. It is difficult to diagnose and treat anaplasmosis

B.Why tests for anaplasmosis appear negative

C. Different patients may show different symptoms

D. A patients medical history is often taken into consideration

Text 2: Questions 15-22

Text 2: Candidiasis

Candidiasis is a fungal infection caused by yeasts that belong to the genus Candida. There are over 20 species of Candida yeasts that can cause infection in humans, the most common of which is Candida albicans. Candida yeasts normally reside in the intestinal tract and can be found on mucous membranes and skin without causing infection; however, overgrowth of these organisms can cause symptoms to develop. Symptoms of candidiasis vary depending on the area of the body that is infected.

Candidiasis that develops in the mouth or throat is called “thrush” or oropharyngeal candidiasis. Candidiasis in the vagina is commonly referred to as a “yeast infection.” Invasive candidiasis occurs when Candida species enter the bloodstream and spread throughout the body. The infection is not very common in the general population. It is estimated that between 5% and 7% of babies less than one month old will develop oral candidiasis. The prevalence of oral candidiasis among AIDS patients, (particularly women rather than men, although not yet an established fact) is estimated to be between 9% and 31%, and studies have documented clinical evidence of oral candidiasis in nearly 20% of cancer patients. Candidiasis of the mouth and throat, also known as “thrush" or oropharyngeal candidiasis, is a fungal infection that occurs when there is an overgrowth of a yeast called Candida. Candida yeasts normally live on the skin or mucous membranes in small amounts. However, if the environment inside the mouth or throat becomes imbalanced, the yeasts can multiply and cause symptoms. Candida overgrowth can also develop in the oesophagus, and this is called Candida esophagitis, or esophageal candidiasis.

Candida infections of the mouth and throat can manifest in a variety of ways. The most common symptom of oral thrush is white patches or plaques on the tongue and other oral mucous membranes. Other symptoms include redness or soreness in

the affected areas; difficulty swallowing; cracking at the corners of the mouth (angular cheilitis) etc.

Candida infections of the mouth and throat are infrequent among adults who are otherwise healthy. Oral thrush presents itself most recurrently among babies less than one month old, the elderly, and groups of people with weakened immune systems. Other factors associated with oral and esophageal candidiasis include HIV/AIDS, cancer treatments, organ transplantation, diabetes etc. Good oral hygiene practices may sporadically help to prevent oral thrush in people with weakened immune systems. Some studies have shown that chlorhexidine (CHX) mouthwash can help to prevent oral candidiasis in people undergoing cancer treatment. People who use inhaled corticosteroids may be able to reduce the risk of developing thrush by washing out the mouth with water or mouthwash after using an inhaler.

Candida infections of the mouth and throat must be treated with prescription antifungal medication. The type and duration of treatment depends on the severity of the infection and patient-specific factors such as age and immune status. Untreated infections can lead to a more serious form of invasive candidiasis. Oral candidiasis usually responds to topical treatments such as clotrimazole troches and nystatin suspension (nystatin “swish and swallow”). Systemic antifungal medication such as fluconazole or itraconazole may be necessary for oropharyngeal infections that do not respond to these treatments. Candida esophagitis is typically treated with oral or intravenous fluconazole or oral itraconazole. For severe or azole-resistant esophageal candidiasis, treatment with amphotericin B may be necessary. For healthcare providers: the most up-to-date clinical practice guidelines for the treatment of oropharyngeal / esophageal candidiasis are available at the Infectious Diseases Society of America.

15. According to paragraph 1, the abode for candida yeasts

is; A. Intestinal tract

B.Mucous

membrane C.Skin

D.All of the above

16. According to paragraph 2, oral candidiasis is;

A. Prevalent among children.

B Prevalent among babies.

C.Common among people suffering from

AIDS. D. Common among female patients with

AIDS. 17 .According to paragraph 2, candida

yeasts; A.grow on the mucous membrane.

B.grow under the skin of the mouth.

C.grow only inside the throat area.

D.grow expeditiously in the esophagus.

18 .The word â€œmanifestâ€• in paragraph 3 may mean;

A. To describe

B.To multiply

C. To show

D.To disguise

19 .What does paragraph 4 indicate?

A.Who gets affected with oral

candidiasis? B.How to prevent oral

candidiasis. C.Risk and prevention.

D.None of the above.

20. According to paragraph 4, candida infections; A.Occur

among people affected with AIDS, diabetes etc. B.Occur less

common among people with a low immunity rate.

C. Can be prevented using off-the-shelf medical products such as CHX mouthwash.

21 .The word â€œsporadicâ€• in paragraph 4 means;

A.Always

B. Not regular C.

Intermittently D.

Every so often

22 .What is the central idea presented in paragraph 5?

A.The treatment process of candidiasis.

B.Treatment and outcome.

C. Medication for candidiasis.

D None of the above.