READING TEST 21

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.

Geriatric Pharmacology

Text A: Changes in gastrointestinal function

The process of aging brings about changes in gastrointestinal function such as increase in gastric pH, deferment in process of expulsion of gastric, decreased motility, and decreased intestinal blood flow. The intake of substances that are actively transported from the intestinal lumen including some sugars, minerals and vitamins may therefore be decreased in elderly patients. Apart from the pathological or surgical alterations in gastrointestinal function such as gastrectomy, pyloric stenosis, pancreatitis, regional enteritis and concurrent administration of other drugs like cholestyramine and antacids may cause changes. Cholestyramine binds and decreases the effectiveness of many drugs including thiazides, anticoagulants, thyroxine, aspirin, PCM, and penicillin, while antacids decrease the efficiency of the process of taking in of drugs such as chlorpromazine, tetracycline, isoniazid.

Plasma protein concentrations may also be altered in elderly patients. Plasma albumin concentrations are causing less increase in free concentration of acidic drugs such as naproxen, phenytoin and warfarin. In contrast, the concentration of α1-acid glycoprotein may be increased in the presence of chronic diseases that frequently occur in the elderly population, potentially increasing the binding of

drugs such as antidepressants, antipsychotic drugs and β-blockers, which are mainly bound to this protein.

Text B: Aging Factor

Body composition, plasma protein binding, and organ blood flow help in determining how effectively the drug is getting into every nook and corner. The total body water and lean body mass decreases, whereas, the body fat as a percentage of body weight increases with aging. The increased body fat is associated with the increase in volume of distribution of fat-soluble drugs such as the benzodiazepines, which leads to a more prolonged drug effect. Thus, it was demonstrated that the elimination half-life of diazepam was prolonged with age despite the fact that systemic clearance was unaltered. Change in organ blood flow with aging may also affect the rate of its efficient movement. In most of the cases, peripheral vascular resistance get enhanced more and more. The same goes with the enhancement of the heart rate or cardiac output.

Text C: Hepatic Blood Flow

Hepatic blood flow and liver mass change in proportion to body weight decrease with aging. The rate of metabolism of many drugs by the cytochrome P450 enzyme system is decreased by 20- 40% with aging. Examples include theophylline, propranolol, nortriptyline, alfentanil, fentanyl, alprazolam, triazolam, diltiazem, verapamil, and levodopa. Many benzodiazepines are metabolized by microsomal enzyme to active metabolites, which are also eliminated by hepatic metabolism. Non-microsomal enzyme pathways may be less affected by age. Example: Ethanol metabolism by alcohol dehydrogenase and isoniazid elimination by acetylation are unchanged in elderly patients. Concurrent drug administration, illness, genetics and environmental factors including smoking may have more significant effects on hepatic drug metabolism than age.

Text D :Toxicity In Drugs

Renal blood flow, glomerular filtration rate and tubular function all decline with aging. In addition to physiological decline in renal function, the elderly patient is particularly liable to renal impairment due to dehydration, congestive heart failure, hypotension and urinary retention, or to intrinsic renal involvement, e.g., diabetic

nephropathy or pyelonephritis. As lean body mass decrease with aging, the serum creatinine level becomes a poor indicator of (and tends to overestimate) the creatinine clearance in older adults.

The Cockroft-Gault formula20 should be used to estimate creatinine clearance in older adults:

Creatinine clearance = {140 - age) x weight (kg) / 72 X serum creatinine in mg/dl

(For women multiplied by 0.85)

Drugs with significant toxicity that have diminished renal excretion with age include allopurinol, aminoglycosides, amantadine, lithium, digoxin, procainamide, chlorpropamide and cimetidine. These agents have reduced clearance, prolonged half-lives and increased steady-state concentrations if dosages are not adjusted for renal function.

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. Substance which is known to decrease absorption.

Answer _____

2. Various factors are known to create an effect on how drug distribution is weakened.

Answer _____

3. Belongs to the class of medicines called digitalis glycosides.

Answer _____

4 .With increase in age, various other health problems increases.

Answer _____

5. Bioavailability and absorption.

Answer_____

6. Drug distribution.

Answer _____

7. Heart will pump less amount of blood through the circulatory system.

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 causes delay in gastric emptying?

Answer _____

9 .What can reduce effectiveness of blood thinners?

Answer _____

10. One of the factors that lead to decrease in body fat is?

Asnwer _____

11. How age can have its effect on cardiac output and peripheral vascular resistance?

Answer_____

12 .What is often stamp out by Hepatic metabolism?

Answer_____

13. What can have major impact on hepatic drug metabolism?

Answer_____

14. What cimetidine is known to be?

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. In most of the patients,_____ will often get transformed.

16. In most of the adults, the_____ will help signal the pathway for creatinine.

17. With steady increase in_____ , there can be increase in volume of

distribution of fat-soluble drugs.

18._____ pathways may not show any kind of change though age increases.

19 .Many of these substances, when they are not altered as needed, are recorded to be effective and known to enhance _____

20_____ is known to be very effective in curtailing down the absorption of drug.

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 The risk to the unborn baby may occur;

During the first half of the pregnancy.

When baby get primary infection through mother.

When infected with virus during first pregnancy.

CMV Infection

About one out of every 150 babies are born with a congenital CMV infection. However, only about one in five babies with a congenital CMV infection will be sick from the virus or will have long-term health problems.

If a woman is newly infected with CMV while pregnant, there is a risk that her unborn baby will also become infected (congenital CMV). Infected babies may, but not always, be born with a disability.

Infection during one pregnancy does not increase the risk for subsequent pregnancies. However, if primary infection occurs, consideration should be given to wait for at least 12 months for next pregnancy.

Studies conducted in Australia have shown that out of 1,000 live births, about 6 infants will have congenital CMV infection and 1-2 of those 6 infants (about 1 in 1000 infants overall) will have permanent disabilities of varying degree. These can include hearing loss, vision loss, small head size, cerebral palsy, developmental delay or intellectual disability, and in rare cases, death.

Sometimes, the virus may be reactivate while a woman is pregnant but reactivation does not usually cause problems to the woman or to the fetus.

2 What is more related to defects?

SARS Co-V

MERS Co-V

Zika

Impact of re-emerging infectious diseases

New or re-emerging infectious diseases can have a huge impact on morbidity, mortality, and costs to the affected region, and pose a significant challenge to healthcare and public health systems. Multiple new diseases have been identified during the past twenty years, including severe acute respiratory syndrome coronavirus (SARS Co-V), Middle East respiratory syndrome coronavirus (MERS Co-V), and novel strains of avian and swine influenza. In addition, multiple existing infectious diseases have re-emerged or resurged, causing large outbreaks. Two recent examples include Zika and Ebola. The Zika virus has caused disease in more than 28 countries and is associated with severe natal deformity, such as microcephaly. The 2014 Ebola virus outbreak infected almost 30,000 individuals and resulted in more than 11,000 deaths worldwide.

3 The following manual talks about;

Digital blood pressure monitoring device.

Traditional blood pressure monitoring.

Accurate Blood Pressure Examination.

OMRON HEM-907XL Intellisense

Developed for the specific use in the clinical office setting and other health care environments, this device determines blood pressure by oscillometric measurement and displays systolic blood pressure, diastolic blood pressure, and pulse rate using an LCD digital monitor. It has the ability to automatically measure and store up to three sequential readings, and has a “hide” feature that hides measurements during acquisition. The pressure measurement range for this device is 0 to 280 mmHg. The OMRON is calibrated to the mercury manometer for routine quality assurance procedures.

4 What is known to have higher acoustical quality?

Littmann Cardioscope III

Littmann Classic II

A and B

Littmann Cardiology III stethoscope

The stethoscopes used for listening to Korotkoff sounds are Littmann Cardioscope III for adults and Littmann Classic II pediatric for children. They have a bell and diaphragm chest piece, and an acoustical rating by the manufacturer of 9 on a scale of 1-10, with a rating of 10 having the best acoustical attributes. The construction uses a single-lumen rubber tubing connection between the ear tubes and the chest piece. The ear tubes can be adjusted to fit the particular user at an anatomically correct angle, and the plastic ear covers come in different sizes allowing the user to match the best ear canal size to achieve an acoustically sealed ear fit. All parts of the stethoscope can be cleaned for use between SPs. The bell of the stethoscope is used to auscultate the Korotkoff sounds for blood pressure measurements.

5 Which word may indicate â€œa plant a saplingâ€™?

Zygote

Blastocyst

Poppy

Implantation

Implantation takes place, when ovulation and fertilization occur. Implantation occurs in early stage of pregnancy when the fertilized egg (zygote) treks down the fallopian tube to the uterus and ascribes to the epithelium or uterine lining. It takes about 8 to 10 days for the fertilized egg to reaches to the uterus. During this time, it develops into a blastocyst through different stages of transformation instigation as a single cell dividing into 150 cells with an outer layer the trophoblastic, a fluid-filled cavity the blastocoel, and a cluster of cells on the interior the inner cell mass. The tiny ball of cells is more or less like poppy generator. It attaches to the epithelium during 4th week of gestation. Once it is firmly adheres, this's called as an embryo. The embryo then again allocates into two parts, which will become the placenta and the fetus. An ultrasound done during the 5 to 6 weeks of gestation period that may show the amniotic sac and yolk sac, which are forming during this time. The amniotic sac is where baby will develop. The yolk sac will later be incorporated in a baby's digestive tract. This ultrasound approves that implantation has taken place.

6 The given notice gives information about;

Women who are now more aware of health conditions.

Industry insights.

The global gynecology devices market size.

The market size was valued at USD 10,984.1 million in 2014. Introduction of minimally invasive procedures such as laparoscopy and high definition imaging devices such as 3D endoscope is primarily boosting market growth. In addition, rising prevalence of diseases, such as uterine fibrosis and sexually transmitted diseases (STDs), associated with female reproductive organs are anticipated to support market growth during the forecast period.

According to the United Nations, the global female population accounted for more than 3.64 billion in 2015. Every woman visits a gynecologist at least once in her lifetime either for pregnancy or other complications related to menstrual cycle. The growing number of patients is likely to drive market growth during the forecast period.

Moreover, healthcare agencies are now promoting routine-checkups for early cancer detection and other gynecological conditions. For example, The American Cancer Society recommends annual breast cancer screening with mammography for women aged between 40 to 44 years. Increase in routine check-ups has helped these devices gain usage rates.

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.

Text1: All About Fetal Alcohol Spectrum Disorders

Fetal Alcohol Spectrum Disorders (FASDs) are an assortment of different conditions that can occur in a person whose mother drank alcohol during pregnancy. These effects can include physical problems and problems with behavior and learning. Often, a person with an FASD has a mix of these problems. FASDs are caused by a woman drinking alcohol during pregnancy when alcohol in the mother's blood passes to the baby through the umbilical cord. When a woman drinks alcohol, so does her baby. There is no known safe amount of alcohol during pregnancy or when trying to get pregnant.

To curtail down the risks of FASDs, a woman should not drink alcohol while she is pregnant, or when she might get pregnant. This is because a woman could get pregnant and be asymptomatic for up to 4 to 6 weeks. In the United States, nearly half of pregnancies are unplanned. If a woman is drinking alcohol during pregnancy, it is never too late to stop drinking. Because brain growth takes place throughout the pregnancy, the sooner a woman stops drinking, the safer it will be for her and her baby.

FASDs can affect every person in different ways, and can range from mild to severe. It may not be difficult to assess why certain problems occur, however, still they have their own appearance time and pattern. A person with an FASD might have: abnormal facial features, such as a smooth ridge between the nose and upper lip (this ridge is called the philtrum); small head size; shorter-than-average height; low body weight; poor coordination etc.

Different terms are used to describe FASDs, depending on the type of symptoms. (i) Fetal Alcohol Syndrome (FAS): FAS represents the most involved end of the FASD spectrum. Fetal death is the most extreme outcome from drinking alcohol during pregnancy. People with FAS might have abnormal facial features, growth problems, and central nervous system (CNS) problems. People with FAS can have problems with learning, memory, attention span, communication, vision, or hearing. They might have a mix of these problems. People with FAS often have a hard time in school and trouble getting along with others. (ii) Alcohol-Related Neurodevelopmental Disorder (ARND): People with ARND might have intellectual disabilities and problems with behavior and learning. They might do poorly in school and have difficulties with math, memory, attention, judgment, and slow, lethargic behaviour (iii) Alcohol-Related Birth Defects (ARBD): People with ARBD might have problems with the heart, kidneys, or bones, or with hearing; they might have a combination of these.

Diagnosing FAS can be hard because there is no medical test, like a blood test, for it. And other disorders, such as ADHD (attention-deficit/hyperactivity disorder) and Williams syndrome, have some symptoms like FAS. To diagnose FAS, doctors look for: heteroclite facial features (e.g., smooth ridge between nose and upper lip); lower-than-average height, weight, or both; central nervous system problems (e.g., small head size, problems with attention and hyperactivity, poor coordination); prenatal alcohol exposure; although confirmation is not required to make a diagnosis etc.

FASDs last a lifetime. There is no cure for FASDs, but research shows that early intervention treatment services can improve a child's development. There are many types of treatment options, including medication to help with some symptoms, behavior and education therapy, parent training, and other alternative approaches. No single treatment is effective for every child. Good treatment plans will include close monitoring, follow-ups, and changes as needed along the way.

Text 1: Questions 7-14

7 As per the information given in paragraph 1, FASDs;

Occur due to alcohol consumption.

Are known to cause behavioral and learning disabilities.

Are a collection of diseases, which occur only in women.

Are a collection of complex, proof-less medical conditions.

8 Paragraph 2 talks more about;

How to prevent FASDs

Why FSADs women should not get pregnant?

What FSADs women should do when pregnant?

How to protect the baby from FASDs during pregnancy?

9 The most appropriate heading for paragraph 3 is _____.

Signs and symptoms

How FASDs affect babies

Common features of FASDs

None of the above

10 According to paragraph 4, what is not true about FAS?

People affected with the FAS show uneven growth.

FAS can lead to development of extra facial features.

People with FAS show poor memory.

FAS children can have health problems but they may mix well with other children.

11 According to paragraph 4, people with _____..show low agility levels.

ARND

FAS

ARBD

ARND and FAS

12 According to paragraph 5, at the time of diagnosis, most doctors look for;

Effects on facial features

Height and body weight problems

Problems with brain functioning

All of the above

13 According to paragraph 5, when is a diagnosis not required?

When it is known that the patients mother is an alcoholic.

When the features such as abnormal facial features, low body weight and lower height become obvious.

When the patient shows all abnormal signs and symptoms of the FAS

a and c

14 According to paragraph 6, treatment for FASDs is;

Specific

Common for all conditions

Dependent on types of conditions

Depends on age

Text 2: Valley Fever

Valley fever, also called coccidioidomycosis, is an infection caused by the fungus, Coccidioides. The fungus is known to live in the soil in the south-western United States and parts of Mexico and Central and South America. The fungus was also recently found in south-central Washington. People can get Valley fever by breathing in the microscopic fungal spores from the air, although most people who breathe in the spores don't get sick. Usually, people who get sick with Valley fever may get better on their own within weeks to months, but some people need antifungal medication. Certain groups of people are at a higher risk of becoming severely ill. It's difficult to prevent exposure to Coccidioides in areas where it's common in the environment, but people who are at a higher risk of severe Valley fever should try to avoid breathing in large amounts of dust if they're in such localities.

Anyone who lives in or travels to the south-western United States (Arizona, California, Nevada, New Mexico, Texas, or Utah), or parts of Mexico or Central or South America can get Valley fever. Valley fever can affect people of any age, but it's most common in adults aged 60 years and over. Certain groups of people may be at a higher risk of developing the severe forms of Valley fever, such as: people with weakened immune systems, for example, people with HIV/AIDS; people who have had an organ transplant; people who are taking medications such as corticosteroids or TNF-inhibitors; pregnant women; and people who have diabetes.

The fungus that causes Valley fever, Coccidioides, doesn't have that potential to cross barriers; the transmission is often formidable, a mighty task that could lead to stark failure. However, in extremely rare instances, a wound infection with

Coccidioides can spread Valley fever to someone else or the infection can be spread through an organ transplant with an infected organ.

The most common way for someone to get Valley fever is by inhaling Coccidioides spores that are in the air. In extremely rare cases, people can get infected from an organ transplant if the organ donor had Valley fever, inhaling spores from a wound infected with Coccidioides, contact with objects (such as rocks or shoes) that have been contaminated with Coccidioides etc.

Scientists continue to study how weather and climate patterns efficaciously affect the habitat of the fungus that causes Valley fever. Coccidioides is thought to grow expeditiously in soil after heavy rainfall and then disperse into the air most vigorously during hot, dry conditions. For example, hot and dry weather conditions have been shown to parlously correlate with an increase in the number of Valley fever cases in Arizona and in California (but to a lesser extent). The ways in which climate change may be affecting the number of Valley fever infections, as well as the geographic range of Coccidioides, isn't known yet, but is a subject for further research.

Healthcare providers rely on your medical and travel history, symptoms, physical examinations, and laboratory tests to diagnose Valley fever. The most common way that healthcare providers test for Valley fever is by taking a blood sample and sending it to a laboratory to look for Coccidioides antibodies or antigens. Healthcare providers may do imaging tests such as chest x-rays or CT scans of your lungs to look for Valley fever pneumonia. They may also perform a tissue biopsy, in which a small sample of tissue is taken from the body and examined under a microscope.

Text 2: Questions 15-22

15 According to paragraph 1, the fungus mentioned is a native of _____ .

US
Washington
Mexico
A and C

16 According to paragraph 1, treatment for valley fever is;

Required
Not required
Required in some specific cases
Not given

17 The most appropriate heading for paragraph 2 is;

When Valley fever may affect someone?
Who gets Valley fever?
Who can show symptoms of Valley fever?
Conditions that are common with Valley fever.

18 The most suitable heading for paragraph 3 is;

Is it contagious?
How can Valley fever transfer?
Valley fever is half contagious
None of the above

19 The most suitable heading for paragraph 4 is;

Uncommon sources of Valley fever

Common sources of Valley fever

How people may get affected with Valley fever

A and C

20 The most appropriate heading for paragraph 5 is;

Valley fever agent and its habitat.

Valley fever and weather.

How temperature affects Valley fever patients?

Climate and Valley fever.

21 Which word in paragraph 5 may mean quickly?

Efficaciously

Vigorously

Expeditiously

B and C

22 The most suitable heading for paragraph 6 is;

How valley fever is identified?

Common ways of identifying Valley fever.

Ways of identifying and treating Valley fever.

Three common tests for Valley fever.