higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

MEDICAL PRACTICE N4
(First Paper)

5 JUNE 2018

This marking guideline consists of 7 pages.

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SECTION A

QUESTION 1

1.1 1.1.1 Articulating system
1.1.2 Lateral
1.1.3 Internal
1.1.4 Foramen
1.1.5 Palmar

(5 × 2) (10)

1.2 1.2.1 On the bottom

1.2.2 At the back

1.2.3 Only visible through a microscope

1.2.4 Divides the body into anterior and posterior sections

1.2.5 The peritoneal cavity consists of the abdominal and pelvic sections

(5 × 2) (10)

1.3 It is called thus because it joins tissue or connects organs to each other.

Loose connective tissue: Loose connective tissue occurs among organs, for example the peritoneum in the abdominal cavity where it serves to support blood vessels and to resist friction. It also occurs beneath the skin, in other words, subcutaneous; more in animals than in humans.

The white fibrous connective tissue is found on its own in certain parts, for example in tendons. It can also be found in cartilage, where reinforcement is necessary. Yellow elastic tissue occurs, among others, in blood vessels where their elasticity facilitates the flow of blood.

AREOLAR TISSUE

Fills out cavities between structures

CARTILAGE

This tissue occurs where elasticity is critical and friction needs to be eliminated, for example the shell of the ear, in the nose, in joints, etc.

FAT

Serves to protect certain organs in the body, for example the kidneys.

BONE

Bone tissue forms the skeletal system and contains great quantities of calcium to harden it.

BLOOD

In reality blood is connective tissue because it occurs in all cells, tissue and organs of the body. It consists of cells floating in a fluid and is not stationary, but in continuous movement.

TENDONS AND LIGAMENTS

Tendons are those parts of muscles that are attached to bone. Ligaments are found at joints where they help to support joints and holds them together.

(Any 4 × 1) (4)

1.4 Pyloric sphincter (2)

1.5 Peristaltic movements (2)

1.6 Visceral pleura (2)

1.7 Afferent nerves (2)

1.8
- Frontal
- Parietal
- Temporal
- Occipital (Any 2 × 1) (2)

1.9 Propioceptors (2)

1.10 Eustachius canal (2)

1.11 Nephron (2)
[40]

TOTAL SECTION A: 40

SECTION B

QUESTION 2

2.1 With inhalation or inspiration the diaphragm contracts and becomes flatter. At the same time the intercostal or inter-rib muscles contract to lift the sternum or pectoral bone up and outwards, thus enlarging the thoracic cavity. The pressure diminishes and as a result of air pressure air enters the lung. When these muscles relax, the opposite happens and expiration takes place. (10)

2.2 Blood is transported via four pulmonary veins from the lungs to the left atrium.

Hence, it is transported through the bicuspid or mitral valve to the left ventricle. Oxygenated blood leaves the heart via the aorta to the rest of the body. All deoxygenated blood returns to the hart via the inferior vena cava, the superior vena cava and the coronary sinus which opens to the right atrium.

The blood flows through the tricuspid valve to the right ventricle. From the right ventricle the blood flows via the pulmonary artery to the lungs where carbon dioxide is released and oxygen is taken up again. (10)
[20]

QUESTION 3

3.1 They are formed in the body by certain lymphocytes after stimulation by ~~the~~ antigens. Blood antibodies or agglutinogens occur naturally in the body from more or less the third to fourth month after birth. When these antibodies come into contact with corresponding antigens, agglutination or conglutination takes place.

According to the ABO system blood is divided into four main blood groups.

A person with A-blood has A-agglutinogens in the red cells and b-agglutinins in the serum or plasma. A person with B-blood has B-agglutinogens and a-agglutinins.

A person with AB-blood has A + B agglutinogens and no agglutinins. A person with O-blood has no agglutinogens and a + b agglutinins.

It thus follows that a person cannot receive any type of blood because it could lead to agglutination, haemolysis and damage of the kidneys. If a person receives incompatible blood, it can be fatal. (10)

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3.2 When a foetus develops from an Rh-negative mother and an Rh-positive father, the possibility that the foetus will be Rh-positive is very great. If this is the case, the blood of the mother can be stimulated to develop Rh-antibodies. These antibodies can move across the placenta, the foetus' red blood cells can agglutinate, haemolysis can take place and brain damage and kidney collapse can occur. This condition is called erythroblastosis foetalis or haemolytic disease of the newly born. More or less 80–85% of the white population is Rh-positive in comparison to 98% of the non-white population. (7)

3.3
- It controls the speed of metabolism.
- It influences the excitability of the nervous system.
- It is involved in the maintenance of healthy skin, hair and nails.
- It contributes to the general endocrine balance of the body.
- It has an exceptional influence on bodily growth and psychological development of the young child. (Any 3 × 1) (3)

[20]

QUESTION 4

4.1 These small tablets are about 1/4 the size of a standard aspirin tablet and must be prescribed by your physician. One tablet is taken daily for 20 consecutive days each month. When the tablets are taken as directed, it is believed to control ovulation as no eggs ripen. Sperm may thus freely enter the oviducts without the possibility of conception occurring. In this way the oral tablet provides the advantage of continuous protection.

The development of the oral tablet was made possible by the discovery that the hormones oestrogen and progesterone in the right combination can actually inhibit ovulation, as these two hormones halt ovulation during pregnancy. With the refinement of this knowledge and the development of new compounds, scientists were able to produce tablets containing hormones like oestrogen and progesterone that would also halt ovulation as during pregnancy. For this reason, some women who take oral contraceptives may experience symptoms of early pregnancy, such as tenderness of the breasts, morning sickness or a full feeling when the tablets are first taken. As the body adjusts, these symptoms usually disappear within a few days. (5)

4.2
- Frequent or persistent headaches
- Discolouration of skin
- Unexplained pains in the chest
- Unusual swelling of the ankles
- Shortness of breath
- Some disturbance in vision, such as seeing double or sudden partial or complete loss of sight
- Unusual persistent or unexplained pain in the legs
- Lumps or growths in the breasts
- Frequent or persistent vaginal bleeding (5)

4.3 4.3.1 As instructed by a physician, the diaphragm should be inserted prior to intercourse. Insertion may be made several hours prior to intercourse.

The diaphragm acts as a barrier, or deflector, preventing sperm from entering the uterus. But to be effective, it must be covered with a spermicidal jelly or cream made for this purpose. Spermicidal preparations kill all sperm on contact.

This is a well-established, proven method which affords many women the security of the physical barrier in addition to the spermicide. The diaphragm has no effect on future fertility. (3)

4.3.2 They are made of soft, flexible plastic. The physician uncoils the device and inserts it by means of a simple tube the size of a soda straw into the cavity of the uterus with a minimum of discomfort. After passing into the uterine cavity, the device returns to its original shape. The device is retained in the uterine cavity as long as it is desired to prevent conception. (3)

4.4 If a condom is not properly fitted, or if it slips off even slightly (as it may after orgasm), or if it tears slightly, some sperm will immediately enter the vagina. Many couples find that the condom dulls the natural sensation. (3)

4.5 Withdrawal before ejaculation. (1)
[20]

QUESTION 5

5.1 This is caused by bacteria, which is known as Neisseria gonorrhoeae or gonococcus. Gonorrhoea is dispersed by coitus. Gonorrhoea is a destructive disease of the male as well as the female reproductive organs. In males it occurs as an acute disease (pyrexia), which involves fever and a yellow-green secretion from the urethra.

These are symptoms of ureteritis and dysuria. In chronic cases it may cause stenosis of the urethra as well as total bilateral isolation of the vas deferens, which results in azoospermia. In females it occurs in the urethra and the cervix. A yellow-green secretion comes from the urethra and from the vagina; it causes itching with dysuria and urinary frequency, and swelling of the labia.

Gonorrhoea may be transmitted by a woman who has the infection and handles her baby. Treatment is the same as for syphilis. Chronic gonorrhoea totally destroys the female oviducts. (10)

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5.2 5.2.1 A breast-fed baby does not need water, because a mother's milk is composed in such a way that it also quenches its thirst. When the milk supply is established, a mother may give the baby milk once or twice a day, a little boiled and cooled water, Rooibos tea or diluted fruit juice. These should never be given as a substitute for breast milk. (3)

5.2.2 For the first four to six months (sometimes even longer), a mother's milk can provide in all a baby's needs.

Depending on its needs and progress, solid food may be given from the fourth to the sixth month. At first the food is given after a baby has been fed. Only one new food stuff should be added at a time every few days to ensure that it agrees with the baby. A mother must also guard against giving her child the wrong type of food. (4)

5.2.3 Just like in the case of food, the substances of all medicine taken by the mother are secreted into her milk, also those of the common aspirin and even fruit salts. The safest is thus not to take any medicine without consulting your doctor. A doctor should always be reminded that a woman is breastfeeding before s/he writes a prescription. (3)
[20]

TOTAL SECTION B: 60
GRAND TOTAL: 100

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