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Royal College of Obstetricians and Gynaecologists Examination Committee

Excerpt

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# March 1997 Paper 1

## 1. Chromaffin cells

- A. are innervated by pre-ganglionic sympathetic nerve fibres.
- B. are present in the adrenal cortex.
- C. are derived from neuro-ectoderm.
- D. can decarboxylate amino acids.
- E. are present in coeliac ganglia.

## 2. The internal pudendal artery

- A. leaves the pelvis through the lesser sciatic foramen.
- B. lies on the medial wall of the ischiorectal fossa.
- C. has a branch which pierces the perineal membrane.
- D. gives rise to the middle rectal artery.
- E. supplies the upper vagina.

## 3. The pelvic splanchnic nerves

- A. are derived from the posterior rami of the sacral spinal nerves.
- B. supply afferent fibres.
- C. unite with branches of the sympathetic pelvic plexus.
- D. supply the ascending colon with motor fibres.
- E. supply the uterus with parasympathetic fibres.

## 4. In the anterior abdominal wall

- A. rectus muscle is intersected transversely by three bands.
- B. the posterior rectus sheath below the arcuate line consists of transversalis fascia only.
- C. above the costal margin the posterior rectus sheath is deficient.
- D. the superior epigastric artery arises from the internal thoracic artery.
- E. the inferior epigastric artery arises from the femoral artery.

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### 5. The rectum

- A. is supplied in part by the inferior rectal artery.
- B. is innervated by the inferior rectal nerve.
- C. is lined by stratified squamous epithelium.
- D. has its lymphatic drainage to the superficial inguinal nodes.
- E. possesses a complete outer layer of longitudinal muscle.

### 6. The obturator nerve

- A. emerges from the lateral border of psoas.
- B. is formed from the posterior divisions of the second, third and fourth lumbar nerves.
- C. passes lateral to the internal iliac vessels.
- D. lies below the obturator artery in the obturator foramen.
- E. is separated from the normally sited ovary only by the pelvic peritoneum.

### 7. In the cerebral cortex

- A. the left visual field is represented in the right cerebral cortex.
- B. the area directly concerned with movements of the face and hand is larger than that concerned with movements of the legs and trunk.
- C. in most people, the left side is more concerned with speech than the right side.
- D. pyramidal cells are present.
- E. the blood supply is wholly from branches of the internal carotid arteries.

### 8. The cervix

- A. consists chiefly of smooth muscle.
- B. has a supravaginal part which is related anteriorly to the ureter.
- C. has a supravaginal part which is covered with peritoneum, anteriorly.
- D. has pain sensation carried by the pelvic splanchnic nerves.
- E. is lined in its vaginal part by keratinised epithelium.

### 9. The right ureter lies in close relationship to the

- A. bifurcation of the right common iliac artery.
- B. infundibulopelvic ligament.
- C. uterine artery.
- D. inferior mesenteric artery.
- E. parietal attachment of the sigmoid mesocolon.

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### 10. The pelvic surface of the sacrum

- A. gives origin to the piriformis muscle.
- B. gives origin to the levator ani muscle.
- C. is broader in the male than in the female.
- D. transmits the dorsal rami of sacral nerves.
- E. is in contact with the anal canal.

### 11. In the fetal circulation

- A. the ductus venosus delivers blood directly into the superior vena cava.
- B. the umbilical artery returns blood from the placenta.
- C. the ductus arteriosus carries blood to the lungs.
- D. blood returning from the lungs is 90% saturated with oxygen.
- E. blood from the inferior vena cava is largely directed through the foramen ovale.

### 12. The ductus venosus

- A. is part of the embryonic heart.
- B. is a shunt preventing blood from passing to the fetal lungs.
- C. gives rise to the ligamentum teres.
- D. carries blood with a higher  $P_{O_2}$  than umbilical arterial blood.
- E. is derived from the anterior cardinal vein.

### 13. The following structures take part in the formation of the anterior fontanelle in the fetal skull:

- A. lambdoidal suture.
- B. occipital suture.
- C. sagittal suture.
- D. glabella.
- E. frontal suture.

### 14. Concerning the embryology of the urinary tract:

- A. The detrusor has a mesodermal origin.
- B. The urogenital sinus is derived from the cloaca.
- C. The allantois gives origin to the lateral umbilical ligaments.
- D. The metanephric ducts arise from the mesonephric ducts.
- E. The mesonephric duct remnants form the epoophoron in the adult female.

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### 15. The following tissues are paired with the appropriate primary germ cell layer of origin:

- A. mammary duct epithelium : ectoderm.
- B. epithelium of the tongue : mesoderm.
- C. pineal gland : ectoderm.
- D. ovarian stroma : mesoderm.
- E. endometrium : mesoderm.

### 16. Adrenocorticotrophic hormone

- A. production is governed by the hypothalamus.
- B. production is maximal about midnight.
- C. is present in the placenta.
- D. is increased in the maternal plasma in pregnancy.
- E. secretion is inhibited by glucocorticoids.

### 17. After the menopause,

- A. the plasma concentration of follicle stimulating hormone increases.
- B. the plasma progesterone concentration increases.
- C. oestrone is the oestrogen found in highest concentration in the plasma.
- D. the plasma testosterone concentration doubles.
- E. the plasma prolactin concentration increases.

### 18. Successful lactation is

- A. maintained by oestrogens.
- B. maintained by progesterone.
- C. initiated by a prolactin surge.
- D. maintained by human placental lactogen.
- E. inhibited by dopamine.

### 19. In a woman of reproductive age, serum concentrations of the following hormones exhibit a recognised pattern of diurnal variation:

- A. progesterone.
- B. melatonin.
- C. cortisol.
- D. oestrone.
- E. follicle-stimulating hormone.

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**20. Serum concentrations of the following increase during pregnancy:**

- A. sex hormone-binding globulin.
- B. prolactin.
- C. total thyroxine.
- D. follicle-stimulating hormone.
- E.  $17\alpha$ -hydroxyprogesterone.

**21. Luteinising hormone**

- A. is required for normal corpus luteum survival.
- B. has a half-life in the circulation of 30 hours.
- C. is released in pulses.
- D. in the male stimulates testosterone production.
- E. plasma concentrations are increased in postmenopausal women.

**22. The release of catecholamines from the adrenal medulla increases**

- A. during sleep in healthy individuals.
- B. when the nerves to the adrenal gland are stimulated.
- C. following an increase in blood sugar.
- D. immediately following a myocardial infarction.
- E. during acute haemorrhage.

**23. Prolactin**

- A. release is stimulated by thyrotrophin-releasing hormone.
- B. plasma levels are raised in the first trimester of pregnancy.
- C. release is increased by suckling.
- D. may be produced by the decidua.
- E. release is inhibited by metoclopramide.

**24. Human chorionic gonadotrophin**

- A. is not produced by the decidua.
- B. is biochemically indistinguishable from luteinising hormone.
- C. is active if given to nonpregnant women.
- D. production rises steadily throughout pregnancy.
- E. has no influence upon the production of oestrogens by the placenta.

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### 25. Human placental lactogen

- A. concentration in maternal plasma is directly proportional to the functional mass of the placenta.
- B. has a half-life in blood of less than 1 hour.
- C. is a steroid hormone.
- D. increases the mobilisation of maternal free fatty acids.
- E. reaches the same concentration in fetal blood as in maternal blood at term.

### 26. The secretion of growth hormone

- A. occurs in the hypothalamus.
- B. ceases when the adult state is reached.
- C. is decreased during stress.
- D. is increased during fasting.
- E. is increased with exercise.

### 27. Oxytocin

- A. is released episodically.
- B. causes decreased renal tubular reabsorption of water.
- C. is responsible for milk ejection.
- D. reduces intestinal peristalsis.
- E. inhibits prolactin secretion.

### 28. Hirsutism in women is characteristically associated with

- A. testicular feminisation.
- B. Turner syndrome.
- C. polycystic ovary syndrome.
- D. arrhenoblastoma.
- E. hypopituitarism.

### 29. Parathyroid hormone

- A. decreases the renal excretion of phosphate.
- B. increases calcium resorption from bone.
- C. depresses pituitary activity.
- D. concentrations in blood are raised when the calcium level falls.
- E. increases renal tubular reabsorption of calcium.

### 30. Aldosterone

- A. reduces sodium reabsorption in the proximal convoluted tubule.

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- B. reduces sodium absorption in the descending loop of Henle.
- C. increases sodium absorption in the distal convoluted tubule.
- D. increases potassium loss from the tubule.
- E. increases sodium absorption in the collecting tubule.

### 31. Oestradiol-17 $\beta$

- A. is synthesised by aromatisation of testosterone.
- B. vasodilates the uterine artery.
- C. suppresses uterine activity by upregulating the oxytocin receptor.
- D. promotes secondary sexual hair growth in females.
- E. is thrombogenic.

### 32. The germination of tetanus spores in a wound is inhibited by

- A. tissue trauma.
- B. oxygen.
- C. injection of anti-toxin.
- D. injection of toxoid.
- E. removal of devitalised tissue.

### 33. Proteolytic enzymes are secreted by the following organisms

- A. *Neisseria meningitidis*.
- B. *Salmonella typhi*.
- C. *Streptococcus pyogenes*.
- D. *Mycobacterium tuberculosis*.
- E. *Clostridium perfringens* (Welchii).

### 34. Cytomegalovirus

- A. is an adenovirus.
- B. may be cultured readily in cell-free media.
- C. is a cause of cerebral calcification.
- D. causes haemolytic anaemia in the neonate.
- E. may be transmitted in saliva.

### 35. The *Treponema pallidum* immobilisation test is positive in

- A. yaws.
- B. infectious mononucleosis.
- C. malaria.
- D. chancroid.
- E. Lyme disease (borreliosis).

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### 36. Leptospirosis

- A. is caused by a Gram-negative coccobacillus.
- B. is frequently transmitted to man from inanimate objects.
- C. can result in a severe form of jaundice.
- D. is a sexually transmitted disease.
- E. is transmitted in pasteurised cow's milk.

### 37. Mycobacteria

- A. are non-sporing.
- B. are all acid-fast in their staining reaction.
- C. are facultative anaerobes.
- D. are responsible for leprosy.
- E. are all pathogenic in humans.

### 38. The following disorders and organisms are correctly paired:

- A. ophthalmia neonatorum : *Chlamydia trachomatis*.
- B. chancroid : *Haemophilus ducrey*ii.
- C. sleeping sickness : *Leishmania donovani*.
- D. ringworm : *Trichinella spiralis*.
- E. non-specific urethritis : *Toxoplasma gondii*.

### 39. The following organisms are Gram-positive:

- A. *Mycoplasma hominis*.
- B. *Staphylococcus aureus*.
- C. *Clostridium perfringens*.
- D. *Klebsiella pneumoniae*.
- E. *Bacteroides fragilis*.

### 40. Concerning hepatitis B virus infection:

- A. Vertical transmission does not occur.
- B. Sexual transmission occurs.
- C. Core antigenaemia indicates high infectivity.
- D. Hepatocellular carcinoma is a recognised complication.
- E. An effective vaccine is available.



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**41. The following antibiotics are usually effective against *Pseudomonas aeruginosa*:**

- A. cephradine.\*
- B. amoxycillin.
- C. carbenicillin.
- D. gentamicin.
- E. trimethoprim.

**42. Recognised unwanted effects of prostaglandin E include**

- A. water retention.
- B. increased uterine contractility.
- C. increased small bowel peristalsis.
- D. flushing of the skin.
- E. vomiting.

**43. The following substances are sympathomimetic amines:**

- A. amphetamines.
- B. ephedrine.
- C. histamine.
- D. isoprenaline.
- E. chlorpromazine.

**44. Subcutaneous atropine injection characteristically produces**

- A. an increase in heart rate.
- B. an increase in salivation.
- C. constriction of the pupil.
- D. a hypnotic effect.
- E. decreased bronchiolar secretion.

**45. The following drugs have anti-cholinergic effects:**

- A. propantheline bromide.
- B. carbachol.
- C. distigmine bromide.
- D. benzhexol.\*
- E. atropine.

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\* Registered international non-proprietary name is now cefradine; BNF 48, September 2004.

\*\* Registered international non-proprietary name is now trihexyphenidyl; BNF 48, September 2004.

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### 46. Treatment with morphine

- A. causes respiratory depression.
- B. increases gastric motility.
- C. causes side effects, which may be reversed by naloxone.
- D. increases the secretion of antidiuretic hormone.
- E. causes pupillary dilatation.

### 47. Hypokalaemia may be caused by

- A. bendrofluazide.\*
- B. digoxin.
- C. spironolactone.
- D. carbenoxolone.
- E. amiloride.

### 48. Concerning heparins:

- A. Heparin is synthesised in the lungs.
- B. Antithrombin III is necessary for standard heparins to exert their anticoagulant effect.
- C. Factor X is inhibited by low-molecular-weight heparins.
- D. Low-molecular-weight heparins have a longer half-life than standard heparins.
- E. Penicillins potentiate the action of low-molecular-weight heparins.

### 49. The following statistical statements are correct:

- A. in the normal distribution, the value of the mode is 1.73 x that of the median.
- B. in a distribution skew to the right, the mean lies to the left of the median.
- C. in the series: 2;7;5;2;3;2;5;8, the mode is 2.
- D. Student's *t*-test is designed to correct for skew distribution.
- E. the Chi-squared test may be used when data are not normally distributed.

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\* Registered international non-proprietary name is now bendroflumethiazide; BNF 48, September 2004.