# TEXT-BASED MULTIPLE CHOICE QUESTIONS

▶ 1. Which is true regarding the normal control of urine storage?

- A. The intravesical pressure increases to a threshold pressure (approximately  $25 \text{ cm H}_2\text{O}$ ) as the bladder slowly fills.
- B. Reflex activation of the parasympathetic innervation of the detrusor during filling prevents bladder contraction and facilitates storage.
- C. Both the internal and external sphincters must remain closed during filling for continence.
- D. Pelvic nerve afferents monitor the bladder volume.
- E. Sensory urgency is associated with an acontractile bladder.
- ► 2. Which of the following statements regarding the innervation of the lower urinary tract is correct?
  - A. The motor neurons that innervate the bladder lie within Onuf's nucleus.
  - B. The pelvic parasympathetic preganglionic fibers are contained in the second, third and fourth sacral spinal nerve roots within the cauda equina.
  - C. The sympathetic innervation of the lower urinary tract passes to the bladder via the pudendal nerves.
  - D. During voiding, bladder neck relaxation is brought about by activation of  $\alpha$ -adrenoceptors in the smooth muscle of the bladder neck.
  - E. Voiding is brought about by activation the lateral part of the PMC.

• 3. Which of the statements below regarding incontinence is correct?

- A. Genuine stress incontinence is typically associated with the sensation of urinary urgency.
- B. Detrusor instability is the expected bladder disorder in neurological disease.
- C. Detrusor hyperreflexia is a common cause of incontinence in a postpartum woman.
- D. Mixed urinary incontinence refers to coexisting stress and urge incontinence.
- E. Incontinence in MSA is due solely to denervation of the sphincters.
- 4. Which statement below relating to neurogenic incontinence is correct?
  - A. Spinal injury results in DH that is generally accompanied by appropriate sphincter relaxation.
  - B. Urinary frequency, urgency and urge incontinence are most commonly seen with detrusor hyperreflexia.
  - C. In detrusor sphincter dyssynergia (DSD), hyperreflexic bladder contractions are synchronized with external sphincteric relaxation, but internal sphincter contraction occurs.
  - D. In cauda equina injury, bladder control is impaired, but ano-rectal function is preserved.
  - E. Detrusor hyperreflexia may be associated with urge, but not stress, incontinence.

5. In the investigation of patients with lower urinary tract symptoms and established neurological disease known to cause bladder dysfunction, which of the following tests is most important? A. Cystometry. B. Urine cytology. C. Post-void residual urine measurement. D. Renal ultrasound. E. Cystoscopy. 6. Which of the following statements relating to the role of cystometry in the investigation of lower urinary tract symptoms in patients with MS is true? A. Videocystometry can identify ureteric reflux. Cystometry is indicated in patients with MS and recurrent urinary tract infections. B. C. Cystometry should only be performed following a cystoscopy to check for bladder cancer. D. Cystometry may provide information regarding the level of the spinal cord lesion. E. Cystometry can identify co-existing detrusor instability in patients with early MS. 7. In patients with neurogenic bladder problems, urological investigations, such as cystoscopy and upper tract imaging, are performed in which of the following situations? A. Urinary symptoms are long-standing. B. Recurrent urinary tract infections are a problem. C. Urinary urgency is causing incontinence. D. The neurological condition is deteriorating. E. Prior to commencement of invasive management options (e.g. clean intermittent selfcatheterization). 8. Which of the following statements regarding oral therapy in the treatment of neurogenic bladder dysfunction is true? A. Detrusor muscle contraction is mediated through sympathetic activation and results in calcium influx into the detrusor cell. B. Oxybutynin acts primarily by blocking calcium channels. C. M3 receptors are most important in mediating detrusor contraction. D. Oxybutynin is a selective M3 receptor blocker. Anticholinergic medications also assist in cases of incomplete emptying by increasing E. detrusor contractility. 9. Which of the following statements regarding clean intermittent self-catheterization (CISC) in neuropathic patients is true? A. CISC is an effective treatment for detrusor hyperreflexia. B. Sterile gloves are not required in CISC, but a sterile catheter is mandatory. C. CISC is not advised when recurrent urinary tract infections are a problem. D. Weakening of the external sphincter is a long-term complication of CISC and can result in incontinence. When the postvoid residual is in excess of 100 ml, CISC should be considered. E.

- 10. In patients with neurogenic bladder dysfunction, which of the following statements regarding indwelling catheters is true?
  - A. Indwelling catheters are more effective than CISC in the prevention of upper tract disease in neurogenic bladder dysfunction.
  - B. Indwelling catheterization carries a higher risk of urethral trauma than CISC.
  - C. When a patient is unsuitable for CISC, urethral catheters should not be considered because of the long-term risk of squamous cell carcinoma.
  - D. Suprapubic catheters have a lower incidence of urinary tract infection when compared to urethral catheters.
  - E. Suprapubic catheters do not require changing as often as urethral catheters.
- 11. Which statement relating to surgical options in the management of neurogenic bladder dysfunction is true?
  - A. Surgery should be considered when neurological deterioration accounts for bladder symptoms that are difficult to manage conservatively.
  - B. Patients with low capacity bladders and non-progressive neurological disease may benefit from augmentation cystoplasty.
  - C. Augmentation cystoplasty avoids the commencement of CISC.
  - D. Sphincterotomy has now replaced CISC in patients with spinal cord injury and DSD.
  - E. Continence is preserved following urethral sphincterotomy as the internal sphincter is not incised.
- ▶ 12. Which of the following statements regarding urinary retention is true?
  - A. Patients with detrusor hyperreflexia and partial urinary retention usually respond to treatment with anticholinergic medication.
  - B. Indwelling catheterization is the treatment of choice when the postmicturition residual volume exceeds 250 ml.
  - C. Mechanical obstruction to flow (e.g. urethral stricture) is a cause of urinary retention.
  - D. Partial urinary retention in neurological patients warrants referral to a urologist for urethro-cystoscopy as the aetiology is likely to be urological.
  - E. Most cases of complete retention have a neurological cause.
- ▶ 13. Which of the following is true?
  - A. Complete urinary retention in young women is usually psychogenic in origin.
  - B. Acute urinary retention for urological reasons is never painful.
  - C. Regular clean intermittent self-catheterization has been shown to weaken detrusor contractility and exacerbate retention.
  - D. Patients with incomplete bladder emptying are usually able to report their disorder.
  - E. Incomplete bladder emptying together with detrusor hyperreflexia can occur in neurological patients.
- ▶ 14. Which statement regarding the pelvic floor and anal sphincters is correct?
  - A. The puborectalis consists of smooth muscle.
  - B. Constipation is relatively rare in patients with multiple sclerosis when compared to the incidence of fecal incontinence in these patients.
  - C. Voluntary contraction of the puborectalis is necessary for bowel emptying.
  - D. The internal sphincter is comprised of an inner circular smooth muscle layer and an outer longitudinal striated muscle layer.

	E. Pregnancy and childbirth are the commonest causes of anal sphincter incompetence in the community.
►	15. Which statement regarding colonic and anorectal function is correct?
	A. Just prior to defecation, volitional Valsalva straining results in an increase in intra- abdominal pressure which is followed by reflex contraction of the internal anal
	<ul> <li>B. Colonic "mass movements" are modified peristaltic contractions that mix the fecal</li> <li>matter to facilitate water absorption</li> </ul>
	<ul> <li>Distension of the rectum to approximately 150 ml results in a drop in the internal anal sphincter closing pressure.</li> </ul>
	<ul><li>D. Pubococcygeal relaxation is associated with a decrease in the anorectal angle.</li><li>E. Anal sphincter squeeze pressure increases with age.</li></ul>
►	16. Which of the following statements is correct?
	A. Most patients with a rectocele complain of constipation.
	B. Intussusception is due to denervation of the rectum.
	C. Intussusception may be a cause of intrarectal obstruction.
	D. Fecal impaction is a rare cause of overflow incontinence.
	E. In non-neurological patients, anal sphincteric incompetence is a rare cause of fecal incontinence.
►	17. In relation to the treatment of constipation, which of the following statements is correct?
	<ul> <li>A. Decreasing fiber intake will increase transit time by reducing stool bulk.</li> <li>B. A high intake of bulking agents (fiber supplements) is recommended in immobile patients with slow colonic transit</li> </ul>
	C Stool softeners usually help in outlet obstruction
	D Colonic stimulants generally aggravate slow transit constinution
	<ul> <li>E. There is an established risk of fecal incontinence where manual evacuation is practiced as a long-term treatment strategy.</li> </ul>
►	18. Which of the following statements regarding fecal incontinence is correct?
	A. Constipating medication has a role in the treatment of fecal incontinence secondary to dementia.
	B. In patients with fecal incontinence secondary to obstetric anal sphincter damage, bowel washout regimens are the first-line treatment.
	C. In intractable fecal incontinence, disposable anal plugs are successful in the majority of patients.
	D. Patients with severe fecal urgency are best managed with a stoma.
	E. Incontinence of flatus is a common problem in patients who have sustained a cauda equina injury.
►	19. Which of the following statements regarding the innervation of the male genital region is true?
	A The sympathetic nerve fibers travel mainly in the pudendal nerves
	B The parasympathetic fibers travel in the pelvic perves
	C The cavernous perves are branches of the hypographic nerves
1	c. The caverhous herves are branches of the hypogastic herves.

- D. The cavernous nerves are branches of the pudendal nerves.
- E. The hypogastric nerves originate in Onuf's nucleus.
- 20. Which of the following statements regarding the neurological pathways for erection is true?
  - A. A sacral segmental pathway subserves psychogenic erections.
  - B. In men with cauda equina lesions and ED, genital somatic sensation is generally preserved.
  - C. Reflex erections are generally preserved in spinal cord injury.
  - D. Afferent impulses are conveyed from the genital regions exclusively in the pelvic nerves.
  - E. If a man experiences nocturnal penile erection, but cannot achieve erection for intercourse, he is likely to have psychogenic ED.
- Which of the following statements regarding neurological diseases and erectile dysfunction is true?
  - A. Because the spinal cord reflexes are intact, ED is rare in Parkinson's disease.
  - B. ED may be an early symptom of hypothalamic-pituitary disorders.
  - C. In multiple sclerosis, sexual responsiveness (i.e. erection) is impaired, but ejaculation is rarely affected.
  - D. Men with spinal cord injury experience psychogenic, but not reflex, erections.
  - E. In multiple system atrophy, symptoms and signs of postural hypotension usually predate the onset of ED.
- ▶ 22. In relation to penile erection, which of the following statements is true?
  - A. At full erection, intracavernosal pressure exceeds systolic blood pressure.
  - B. A single helicine artery supplies each corpus cavernosum.
  - C. Cavernosal smooth muscle relaxation is mediated by release of nitric oxide.
  - D. Endothelial nitric oxide release follows sympathetic activity.
  - E. The subtunical veins are closed during erection by intraluminal valves.
- ▶ 23. Which of the following statements regarding ejaculation is true?
  - A. Parasympathetic activity is responsible for bladder neck closure during ejaculation.
  - B. Sympathetic activity results in emission of the ejaculate into the urethra.
  - C. Sympathetic activity results in contraction of the pelvic floor muscles during ejaculation.
  - D. Nitric oxide release decreases penile blood flow after ejaculation.
  - E. Ejaculation and orgasm are rarely affected in spinal cord lesions.
- 24. In a patient with established neurological disease, which of the following, may be useful in the initial assessment of ED?
  - A. Nocturnal penile tumescence testing.
  - B. Glucose tolerance test.
  - C. Cavernosometry.
  - D. Cavernosography.
  - E. None of the above.

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 ▶ 25.	Which statement regarding the treatment of ED is true?
 A. B. C.	Sildenafil citrate is a highly selective agonist of type 5 phosphodiesterase. Sildenafil citrate acts by inducing erections in the absence of sexual stimulation. Sildenafil citrate acts in part by increasing sexual desire.
D.	Adverse effects associated with sildenafil citrate include facial flushing and nasal stuffiness
E.	There is an increase in cardiovascular risk whilst taking sildenafil citrate.
► 26.	Of the following statements regarding intracavernosal pharmacotherapy in ED, which is true?
 A. B.	Prostaglandins are potent vasoconstrictors, causing occlusion of the penile veins. The intracavernosal injection of alprostadil is associated with penile pain in up to $40\%$ of patients
 C.	When priapism occurs, treatment options include watchful waiting, as 50% of cases will resolve spontaneously
D.	In those with ED who will not or are unable to self-inject alprostadil, the intraurethral route is an option with excellent results in most patients
E.	If a patient does not respond to sildenafil citrate, they are unlikely to respond to intracavernosal injection therapy.
 ► 27.	In relation to female sexual function, which of the following statements is true?
 A.	Nitric oxide-mediated vasoconstriction results in venous engorgement and swelling
 B.	Secretions from the cervix are the primary source of vaginal lubrication during sexual
 C.	The clitoris has a density of innervation almost equivalent to the glans penis.
 D.	pelvic floor musculature.
 E.	The clitoral herve is a branch of the fine pelvic herves.
 ▶ 28.	Which of the following statements regarding lower urinary tract function in MS is correct?
 A.	After 10 years of disease activity, >95% of MS patients will experience lower urinary tract symptoms.
B.	The number of spinal cord lesions or extent of cord atrophy correlates well with specific urodynamic parameters.
 C.	Approximately 10% of patients with lower urinary tract symptoms and DSD demonstrate extensor plantar responses (Babinski's sign) on clinical examination.
D.	Detrusor sphincter dyssynergia is seen in >90% of patients with MS and lower urinary tract symptoms.
E.	Urinary incontinence in MS is secondary to denervation of the urinary sphincter.
► 29.	Which of the following statements regarding lower urinary tract function in MS is correct?
A.	Most patients with a postvoid residual report a sensation of incomplete emptying.
 C.	Renal damage secondary to lower urinary tract dysfunction is common in patients with advanced MS
 D.	Detrusor sphincter dyssynergia (DSD) results in decreased bladder pressures.
 ь.	Dob and imparted detrusor contraction can result in a high postvoid residual.

30.	Which of the following statements regarding tropical spastic paraparesis (TSP) is correct?	
A. B. C. D. E.	Bladder dysfunction occurs in up to 25% of infected individuals. The commonest urodynamic abnormality is decreased detrusor activity. Bladder capacity is decreased in most patients with TSP. A postvoid residual is unlikely, as detrusor sphincter dyssynergia (DSD) is rarely observed. Upper tract disease is common.	
31.	Which statement regarding urinary tract dysfunction in spinal cord injury (SCI) is correct?	
A. B. C. D. E.	The period of intense detrusor overactivity, which immediately follows SCI, is best managed with an indwelling catheter. Patients with SCI and MS are at an equal risk of renal failure. In a patient with long-term SCI, cystoscopy reveals a thin-walled, atonic bladder. Stone formation can serve as a nidus for recurrent urinary tract infections. Brindley sacral root stimulators are used to suppress unstable contractions and incontinence secondary to detrusor hyperreflexia.	
32.	Which of the following statements relating to bowel dysfunction in MS is correct?	
А. В. С. D. Е.	The incidence of bowel problems in patients with MS is similar to urinary symptoms. The most frequent abnormalities of bowel dysfunction are incontinence of feces and flatus. Insufficient contraction of the pubococcygeus muscle during defecation results in incomplete bowel emptying. Patients with severe constipation secondary to colonic inertia will benefit from phosphate enemas. The most common cause of fecal incontinence in MS is uninhibitable rectal contraction.	
33.	Which of the following statements regarding bowel dysfunction in spinal cord injury (SCI) is correct?	
A. B. C. D. E.	In SCI, the predominant problem is constipation secondary to immobility. The majority of patients with SCI do not need to do regular manual evacuation. The best management option for patients with SCI is colostomy. Autonomic dysreflexia can be precipitated by fecal impaction. Autonomic dysreflexia generally occurs when the level of the SCI is below T6.	
34.	Which of the following statements regarding cauda equina anatomy is correct?	
А. В. С. D. Е.	The conus medullaris usually ends at the lower border of the twelfth thoracic vertebra. The thoracic and lumbar spinal nerve roots converge in the celiac and paravertebral plexi. Disorders affecting the cauda equina are characterized by weakness and sensory loss in the lower limbs, buttocks and perineum, but usually with preserved uro-genital function. Disk herniations usually occur in the central portion. The sacral roots lie closest to the midline in the cauda equina.	 
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	35. Saddle anesthesia is characteristic of which of the following conditions below?
	A. Spinal arachnoiditis.
	B. Lesions of the centrally lying roots within the cauda equina.
	C. Bilateral S1 radiculopathies.
	D. Pelvic nerve injury.
	E. Carcinomatous meningitis.
	36. Lumbosacral spinal stenosis is associated with which of the following conditions?
	A. Paget's disease.
	B. Ankylosing spondylitis.
	C. Achondroplasia.
	D. Fluorosis.
	E. All of the above.
	37. Which of the following statements below is correct?
	A. Neurosurgical intervention in patients with a tethered cord results in improved
	bladder symptoms.
	B. Patients with myelomeningocele are at a low risk of developing renal impairment.
	C. Most patients with tethered cord syndrome have a hypocontractile bladder.
	D. In patients with tethered cord syndrome, radicular type pain is uncommon.
	E. Tethered cord syndrome usually presents in middle to late adulthood with
	sensorimotor symptoms and signs, often in both legs, and bladder dysfunction.
	38. Which of the following statements below is correct?
	A Bladder dysfunction is common in spinal arachnoiditis
	B Bladder dysfunction associated with transient radicular irritation resolves
	spontaneously
	C Urinary disturbance occurs late in the cytomegalovirus cauda equina syndrome
	D Genital herpes simplex infections may cause a neurological syndrome consisting of
	sacral pain or numbress and detrusor hyperreflexia.
	E. Cytomegalovirus cauda equina syndrome may occur in patients with AIDS and
	urinary disturbance is often an early symptom.
	20 Which of the following statements below is connect?
	59. Which of the following statements below is correct:
	A. EMG studies of the lower limbs are able to confirm damage to the S3, S4 nerve roots
	within the cauda equina.
	B. In transient radicular irritation (or transient neurological syndrome), both bladder
	and bowel function are affected.
	C. In spinal stenosis, surgery has no impact on symptoms or disease progression in the
	majority of patients.
	D. In patients with cauda equina lesions, incontinence is secondary to weakness of the
	urethral sphincter.
	E. Most patients with cauda equina lesions have perianal hyperesthesia.
	40. Which of the following statements regarding bladder and bowel dysfunction in
	diabetes mellitus is correct?
	A. Diabetic cystopathy typically presents with urge incontinence.

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В.	clean intermittent self-catherisation is inappropriate for diabetics.	
C.	Diabetic cystopathy rarely presents concurrently with other manifestations of autonomic failure.	
D. E.	Diarrhoea in diabetic patients can be caused by faecal impaction. In diabetic diarrhoea, anorectal incompetence is common.	
41.	Which of the following statements regarding diabetes mellitus and autonomic dysfunction is correct?	
А. В. С.	ED generally presents with other symptoms and signs of dysautonomia. Failure of ejaculation is common in diabetics. Spontaneous nocturnal erections are generally preserved in most diabetic patients	
D. E.	with ED. ED in diabetes is solely due to atherosclerosis of the cavernosal arteries. Esophageal motility studies are frequently abnormal in diabetics, but symptoms are uncommon.	
42.	Which of the following statements regarding amyloid neuropathy and porphyria is correct?	
A.	The somatic polyneuropathy in amyloid disease is initially of the small fibre type, causing painful paraesthesiae	
B.	When pelvic organ dysfunction is present in amyloid neuropathy, it is unusual to see other features of dysautonomia.	
C. D. E.	Somatic and autonomic neuropathy is rare in immunoglobulin amyloidosis. Porphyria is typified by the acute onset of mainly sensory distal neuropathy. Neurological manifestations are seen only in the hereditary coproporphyria and variagate types of porphyria.	
43.	Which of the following statements regarding bladder, bowel and sexual dysfunction in demyelinating peripheral neuropathy is correct?	
	in dentyemaning peripheral neuropatity is correct:	
А. В.	Dysautonomia occurs in a minority of patients with Guillain-Barré syndrome (GBS). The presence of dysautonomia in the acute period of paralysis carries a poor prognosis	
C.	Bladder dysfunction occurs in 20% patients with GBS.	
D.	Sensorimotor neuropathy).	
E.	Erectile dysfunction is a common presenting feature in chronic inflammatory demyelinating neuropathy.	
44.	Which of the following statements regarding focal peripheral neuropathy and pelvic organ dysfunction is correct?	
A.	Trauma (e.g. pelvic fractures involving the sacrum) is the commonest cause of injury to the pelvic nerves.	
B.	Postpartum faecal incontinence is primarily caused by damage to the autonomic	
C.	Abdominoperineal resection rarely results in damage to the pelvic nerves.	
D.	Erectile dysfunction following radical prostatectomy is solely due to vascular damage.	
E.	30% of patients develop ED following radiotherapy for prostate cancer.	

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▶ 45. Which of the following statements regarding the diagnosis and management of pelvic organ dysfunction in patients with peripheral neuropathy is correct? A. Patients with polyneuropathies that are associated with pelvic organ dysfunction rarely have motor and sensory symptoms in the hands and feet. B. Clinical examination is not sufficiently sensitive to detect the changes in peripheral nerve function likely to result in pelvic organ dysfunction. C. A resting tachycardia indicates parasympathetic cardiovagal dysfunction. D. A decrease of > 20mm Hg systolic pressure when the patient is moved from the lying to standing position indicates a parasympathetic vasoconstrictor abnormality. E. Clinical examination of the perineum will detect changes in peripheral nerve function following pelvic nerve damage. 46. Which statement regarding pelvic dysfunction in parkinsonism is correct? A. In patients with Parkinson's disease, pelvic organ dysfunction usually occurs early in the course of the disease. In MSA, urinary symptoms are less common than symptoms of orthostatic B. hypotension. C. Detrusor hyperreflexia is common in MSA. D. Urinary incontinence in MSA is solely due to sphincter denervation. E. Anal sphincter EMG may show myogenic abnormalities in patients with PD. 47. Which statement regarding pelvic dysfunction in parkinsonism is correct? The commonest urodynamic abnormality in PD is sphincter bradykinesia. А. B. Autonomic responses to rectal distention at anorectal manometry can distinguish between MSA and PD. C. In MSA, constipation is more common than fecal incontinence. D. In PD, difficulty in defecation is secondary to reduced resting and defecating pressures. E. Dopamine agonists do not have an effect on defecatory dysfunction in PD. 48. Which statement regarding sexual dysfunction in parkinsonism is correct? A. Apomorphine has no effect on erectile function. B. Hypersexuality may occur in patients on L-Dopa therapy. C. Erectile dysfunction (ED) is rarely encountered in patients with PD on treatment because dopamine receptor agonists are erectogenic. D. The onset of ED in patients with MSA generally heralds a rapid neurological decline. Erectile function is generally preserved in pure autonomic failure. E. 49. Which of the following statements regarding the role of higher centers in the control ► of lower urinary tract function is correct? A. Bladder control always resides in the hemisphere opposite to that in which speech is localized. B. In a typical case of frontal lobe incontinence, the patient has severe urinary frequency, urgency and urge incontinence about which they are not concerned. C. Urinary retention follows brainstem, but not cortical, lesions. D. Following frontal or anterior cingulate damage, micturition proceeds automatically and involuntarily. E. The onset of incontinence in patients with Alzheimer's disease is not related to the duration and stage of the illness.

50.	Which of the following statements regarding lower urinary tract dysfunction after
	cerebrovascular accidents is correct?

- A. A correlation between urinary incontinence following a stroke and prognosis has not been shown.
- B. The majority of patients with internal capsular CVA have uninhibited relaxation of the sphincter during involuntary bladder contractions.
- C. In the acute phase of a CVA, the commonest urodynamic abnormality is detrusor hypocontractility.
- D. A disturbance of bladder control is commoner following a posterior than an anterior cerebral infarct.
- E. In patients with persisting urinary symptoms post-CVA, urodynamic studies correlate well with the site and size of the lesion.

#### **ANSWERS TO TEXT-BASED QUESTIONS**

1.	D	11.	В	21.	В	31.	D	41.	Е
2.	В	12.	С	22.	С	32.	D	42.	А
3.	D	13.	Е	23.	В	33.	D	43.	С
4.	В	14.	Е	24.	E	34.	E	44.	Е
5.	С	15.	С	25.	D	35.	В	45.	С
6.	А	16.	С	26.	В	36.	E	46.	С
7.	В	17.	С	27.	D	37.	D	47.	С
8.	С	18.	E	28.	А	38.	E	48.	В
9.	E	19.	В	29.	E	39.	D	49.	D
10.	В	20.	С	30.	С	40.	D	50.	В