

Specialty Certificate in Neurology Sample Questions

Question: 1

A 70-year-old woman developed features of Parkinson's disease. Levodopa was unhelpful. Nine months later her memory deteriorated. Cognitive function fluctuated and she was worse at night, with confusion and visual hallucinations.

What is the most likely diagnosis?

- A corticobasal degeneration
- B dementia with Lewy bodies
- C multiple system atrophy
- D Parkinson's disease with superimposed Alzheimer's disease
- E vascular dementia

Question: 2

A 75-year-old woman complained of weakness of her left leg. Forty-eight hours previously she had been given a spinal anaesthetic for a left total-hip replacement. The operation note and anaesthetic chart suggested no untoward events during the operation.

On examination, neurological signs were confined to the left leg. There was severe weakness of flexion of the knee, dorsiflexion, plantar flexion, inversion and eversion of the ankle, extension of the great toe and flexion and extension of the toes. The knee jerk was normal but the ankle jerk was absent. There was diminished sensation to pinprick over the calf, the sole and dorsum of the foot extending up the anterolateral aspect of the shin to just below the tibial tuberosity.

What is the most likely diagnosis?

- A common peroneal nerve lesion
- B diabetic amyotrophy
- C L5/S1 disc prolapse
- D sciatic nerve lesion
- E spinal extradural haematoma

Question: 3

A 36-year-old woman presented with weakness and cramps in the hands, worsening over the preceding 2 years. On examination of the upper limbs, there was no wasting or fasciculation, tone was decreased, the reflexes were normal and there was marked weakness, particularly of the fingers of the left hand. Sensation was normal.

Investigations:

| | |
|---------------------------------------|----------------------|
| MR scan of cervical spine | normal |
| serum creatine kinase | 300 U/L (24–170) |
| cerebrospinal fluid: total protein | 0.60 g/L (0.15–0.45) |

What is the most likely diagnosis?

- A amyotrophic lateral sclerosis
- B chronic inflammatory demyelinating polyradiculoneuropathy
- C inclusion body myositis
- D multifocal motor neuropathy with conduction block
- E myasthenia gravis

Question: 4

A 29-year-old man presented with agitation and drowsiness. Prior to admission he had become apathetic and had gained 6 kg in weight.

On examination, he appeared unkempt. His Glasgow coma score was 12, his temperature was 38.0°C and his visual acuity was 6/18 bilaterally. There was horizontal nystagmus and dysarthria.

Investigations:

| | |
|----------------------|---|
| CT scan of head | right frontotemporal calcification and oedema with leptomeningeal contrast enhancement and dilated ventricles |
| cerebrospinal fluid: | |
| opening pressure | 160 mmH ₂ O (50–180) |
| cell count | 14/μL (≤5); 100% lymphocytes |
| total protein | 0.55 g/L (0.15–0.45) |
| glucose | 7.2 mmol/L (3.3–4.4) |
| plasma glucose | 23.4 mmol/L |
| CT scan of thorax | mediastinal lymphadenopathy |

What is likely to be the most useful diagnostic test?

- A brain biopsy
- B complement concentration
- C lymph node biopsy
- D MR scan of head
- E serum ACE

Question: 5

A 50-year-old man presented with sudden transient diplopia accompanied by loss of feeling on the left side of the body. The diplopia had resolved by the time he was seen.

On examination, there was a right partial ptosis, right pupil smaller than left, normal eye movements and pupil light reactions. There was sensory loss over the left side of the face and head, and the whole of the left side of the body. The motor system was normal other than mild right-sided ataxia.

Which is the most likely anatomical site for the presumed vascular lesion?

- A basal (ventral) right side of midbrain
- B basal (ventral) right side of pons
- C dorsolateral right side of medulla
- D dorsolateral right side of midbrain
- E dorsolateral right side of pons

Question: 6

A 40-year-old woman was referred regarding screening for an intracranial aneurysm. She was asymptomatic other than occasional migraine with typical visual aura. She did not smoke, and drank alcohol occasionally. Her elder brother had a history of aneurysmal subarachnoid haemorrhage (SAH) 2 years previously.

What is the most appropriate next management step?

- A CT angiography
- B MR angiography
- C intravenous digital subtraction angiography
- D no investigation
- E transcranial Doppler sonography

Question: 7

A 26-year-old woman presented with three headaches over a 7-month period. Each episode was characterised by severe right-sided headache lasting 12 hours, preceded by teichopsia and associated with mild nausea.

What is the most appropriate initial treatment?

- A Cafergot[®] suppository at the onset of the next attack
- B ibuprofen at the onset of the next attack
- C pizotifen prophylaxis
- D propranolol prophylaxis
- E sumatriptan at the onset of the next attack

Question: 8

A 50-year-old man presented with daytime somnolence, anxiety and a feeling of breathlessness especially on lying flat, which had increased over 6 weeks. There was no history of lung disease. He was uncertain if he snored at night. He now sat up to sleep.

On examination, he had a body mass index of 35 kg/m^2 (18–25), collar size 46 cm and no spinal abnormality. Neurological and cardiac examinations were normal. He seemed very anxious, panicky, tachypnoeic and was hyperventilating. He refused to lie down to be examined, insisting that he would not be able to breathe.

Investigations:

| | |
|------------------------------|--------|
| ECG | normal |
| forced vital capacity (FVC): | |
| sitting | 3.0 L |
| semi-recumbent | 1.2 L |

What is the most likely cause for his symptoms?

- A hyperventilation due to anxiety disorder
- B laryngeal obstruction
- C obstructive sleep apnoea
- D severe expiratory muscle weakness
- E severe inspiratory weakness

Question: 9

A 44-year-old woman presented with disturbed sleep for 7 years. She was unaware of any problem, but her husband reported that she sat up and rubbed her head for 3–4 minutes, between three and ten times a night. Occasionally she would stand up. She snored when lying on her back. Her father had late onset epilepsy.

Examination was normal. Her electroencephalography was normal.

What is the most likely diagnosis?

- A familial frontal lobe epilepsy
- B jactatio capitis nocturna
- C somnambulism
- D periodic limb movement of sleep
- E rapid eye movement sleep behaviour disorder

Question: 10

A 23-year-old man presented 1 hour after a head injury sustained while playing rugby. He had briefly lost consciousness and was witnessed to have a few clonic movements of the limbs. He regained consciousness within 30 seconds with no post-traumatic amnesia or confusion.

On examination, his Glasgow coma score was 15 and there were no abnormal neurological signs.

Which of the following options is most appropriate?

- A electroencephalography
- B MR scan of brain
- C no investigation
- D serum prolactin
- E X-ray of skull

Question: 11

A 54-year-old woman gave a 1-week history of recurrent headaches, neck pain, dizziness and unsteadiness. Symptoms were worse on first sitting up in the morning. Her symptoms had begun after a road traffic accident.

Her past medical history included type 2 diabetes mellitus, hypercholesterolaemia and hypertension. She smoked 30 cigarettes per day.

On examination, she appeared anxious. There were no focal neurological signs. A CT scan of head was reported normal.

What is the most likely diagnosis?

- A benign paroxysmal positional vertigo
- B cervical spondylosis
- C perilymph fistula
- D vertebral artery dissection
- E vertebrobasilar insufficiency

Question: 12

A 35-year-old woman developed bilateral optic neuritis with partial recovery. An MR scan of brain was normal.

One year later, she developed paraparesis and incontinence. She was given intravenous methylprednisolone followed by oral prednisolone, but continued to deteriorate.

Investigations:

| | |
|--|---|
| erythrocyte sedimentation rate | 7 mm/1st h (<20) |
| antinuclear antibodies | positive; 1 in 40 |
| antibodies to aquaporin-4 | negative |
| MR scan of spine | high-signal lesion from C6 to T10 |
| cerebrospinal fluid: white cell count | 12/ μ L (\leq 5) negative oligoclonal bands |

What is the most likely diagnosis?

- A acute disseminated encephalomyelitis
- B multiple sclerosis
- C neuromyelitis optica
- D Sjögren's syndrome
- E systemic lupus erythematosus

Question: 13

A 72-year-old man presented with bilateral asymmetrical weakness of hand grip.

On examination, there was loss of muscle bulk on the volar aspect of the forearms and impaired flexion of the distal interphalangeal joints of the fingers.

Impaired function of which muscle is chiefly contributing to the weakness seen?

- A flexor carpi radialis
- B flexor digitorum profundus
- C flexor digitorum superficialis
- D flexor pollicis brevis
- E flexor pollicis longus

Question: 14

A 24-year-old woman presented with a 6-week history of increasing anxiety and insomnia. She was admitted to a psychiatric ward and a neurological opinion was sought because she developed facial grimacing and generalised choreiform movements. She had been given benzodiazepines but no neuroleptics.

On examination, she was mute. Her temperature was 37.8°C. She had choreiform movements affecting the limbs and trunk. Reflexes were normal. There were no pyramidal tract signs. There was no evidence of myoclonus.

Investigations:

| | |
|----------------------|--|
| MR scan of brain | normal |
| electroencephalogram | diffuse slow waves |
| cerebrospinal fluid | normal with negative oligoclonal bands |

A paraneoplastic syndrome was suspected.

What tumour is the most likely to be associated with this syndrome?

- A breast carcinoma
- B lymphoma
- C ovarian teratoma
- D small cell tumour of lung
- E uterine leiomyoma

Question: 15

A 34-year-old woman reported left-sided foot drop following epidural analgesia for vaginal delivery. Her labour had been long but uncomplicated.

On examination, there was weakness of left ankle dorsiflexion and eversion, and of left toe dorsiflexion. The deep tendon reflexes were normal and the plantar responses flexor. She had sensory loss over the dorsum of the left foot and the lateral aspect of the left lower leg.

What is the most likely site of the lesion?

- A common peroneal nerve
- B L5 nerve root
- C lumbar plexus
- D sacral plexus
- E sciatic nerve

Question: 16

A 76-year-old man developed unsteadiness when trying to walk, 2 weeks after undergoing right hemicolectomy for carcinoma. His postoperative course had been complicated by severe Gram-negative sepsis for which he had required assisted ventilation and treatment with broad-spectrum antibiotics. At one stage, trough gentamicin concentration had been in the toxic range.

On examination, head-thrust test was normal. He was able to stand independently, but swayed. He had a broad-based gait and could not tandem walk. Romberg's test was negative.

What is the most likely diagnosis?

- A acute alcohol withdrawal
- B cerebellar stroke
- C gentamicin toxicity
- D paraneoplastic cerebellar degeneration
- E subacute combined degeneration of the cord

Question: 17

A 38-year-old man gave a 12-year history of progressive lower limb weakness. Until his mid-twenties he had played squash to club standard. There was no family history of neurological disorders.

On examination, cranial nerve function was normal. The upper limbs were normal, with no scapular winging. There was moderate bilateral weakness of quadriceps and hip flexors and mild weakness of ankle dorsiflexors. Lower limb reflexes were absent but plantar responses were flexor. Sensory examination was normal.

Investigations:

serum creatine kinase

5000 U/L (24–195)

What is the most likely diagnosis?

- A Becker's muscular dystrophy
- B dysferlinopathy
- C Emery–Dreifuss muscular dystrophy
- D facioscapulohumeral dystrophy
- E hereditary sensory motor neuropathy

Question: 18

A 45-year-old man presented with a 4-day history of fever, headache and neck stiffness.

On examination, he was pyrexial (39°C). His Glasgow coma score was 15. Kernig's sign was positive. There were no focal neurological signs.

Investigations:

| | |
|------------------------------|---------------------------------|
| cerebrospinal fluid: | |
| opening pressure | 240 mmH ₂ O (50–180) |
| total protein | 1.2 g/L (0.15–0.45) |
| glucose 1.2 mmol/L (3.3–4.4) | |
| cell count 150/μL (≤5) | |
| lymphocyte count | 10% (60–70) |
| neutrophil count | 150 (none) |

Gram stain Gram-positive diplococcus

Which organism is the most likely causative agent?

- A Escherichia coli
- B Haemophilus influenzae
- C Listeria monocytogenes
- D Neisseria meningitidis
- E Streptococcus pneumoniae

Question: 19

A 23-year-old overweight woman with idiopathic intracranial hypertension had undergone an MR scan of brain (normal) and lumbar puncture (cerebrospinal fluid normal but raised pressure). She was dieting and had lost 5 kg in weight. She was taking acetazolamide 500 mg twice daily.

On examination, she had bilateral papilloedema with a visual acuity of 6/12 on the right and 6/9 on the left. Over the following week her blind spots had increased further in size, and there was now a centrocaecal scotoma in her right eye and peripheral visual field constriction. A further therapeutic lumbar puncture was performed but in spite of this her vision continued to deteriorate.

What is the most appropriate next step in management?

- A add furosemide
- B daily lumbar punctures
- C gastroplication (banding)
- D intravenous corticosteroids
- E lumboperitoneal shunt

Question: 20

A 35-year-old Asian man was admitted in a coma. He was separated from his family and living rough. No history was available, other than the suggestion that he was a heavy drinker.

On examination, he had periodic breathing. His Glasgow coma score (GCS) score was 3. He was swiftly intubated and received mechanical ventilation. Following treatment with thiamine and glucose, there was no change in his GCS.

Investigations:

| | |
|---|-------------------------|
| random plasma glucose | 4.9 mmol/L |
| cerebrospinal fluid: | |
| total protein | 2.4 g/L (0.15–0.45) |
| glucose | 2.2 mmol/L (3.3–4.4) |
| cell count | 12/ μ L (\leq 5) |
| lymphocyte count | 100% (60–70) |
| Gram stain and acid-fast bacillus stain | negative |
| CT scan of head | enlarged ventricles |

What is the most likely diagnosis?

- A cryptococcal meningitis
- B herpes simplex encephalitis
- C pneumococcal meningitis
- D sarcoidosis
- E tuberculous meningitis

Question: 21

A 30-year-old woman presented with an eye movement abnormality. On examination, attempted horizontal pursuit movements were characterised by failure of abduction, in the presence of pupillary constriction.

What is the most likely diagnosis?

- A convergence spasm
- B Duane's syndrome
- C Miller Fisher syndrome
- D myasthenia gravis
- E Parinaud's syndrome

Question: 22

A 50-year-old man complained of double vision when reading a newspaper 1 week following a minor head injury.

On examination, he had double vision maximal on looking down and to the left. The peripheral (outer) image came from the right eye.

Which extraocular muscle is most likely to be affected?

- A left inferior oblique
- B left superior oblique
- C right inferior oblique
- D right inferior rectus
- E right superior oblique

11. Answer Key: E

Question: 23

A 24-year-old soldier was involved in an ambush in which the car he was travelling was blown up by a land mine. He sustained minor limb and facial injuries, but the other two occupants of the car were killed. Two weeks after the incident, he complained of intermittent headaches, nightmares, poor concentration and anxiety. He expressed guilt at being the only person to survive the explosion and expressed a wish to leave the Army.

On examination, he was distressed and tearful.

What is the most likely diagnosis?

- A acute depressive episode
- B adjustment disorder
- C factitious disorder
- D panic disorder
- E post-traumatic stress disorder

Question: 24

A 30-year-old Somali woman gave a 2-year history of worsening burning low back pain radiating into her legs, with leg cramps and urinary urgency and incontinence. She had moved to the UK 3 years previously.

Examination showed a mild spastic paraparesis. Her CD4 lymphocyte count was normal. An MR scan of spine demonstrated patchy increased T2 signal mainly in the thoracic cord. Cerebrospinal fluid examination showed a lymphocytosis of 20 cells/mm³, raised IgG and the presence of unpaired oligoclonal bands.

What is the most likely diagnosis?

- A HIV vacuolar myelopathy
- B human T-lymphotropic virus type I associated myelopathy
- C multiple sclerosis
- D neurosyphilis
- E subacute combined degeneration of the cord

Question: 25

A 51-year-old-woman presented with weakness of her right hand, which had developed 2 days after receiving a flu vaccine in her left arm. For 24 hours after the immunisation, she had felt unwell with mild fever, right-sided neck pain and muscle ache. She had a history of hypertension, for which she was taking bendroflumethiazide 5 mg daily.

On examination, she had right finger drop with loss of thumb extension. Power was otherwise normal. There was no sensory deficit. All tendon reflexes were symmetrical and brisk. Her right plantar response was equivocal and left plantar response was flexor.

What is the most likely cause of her hand weakness?

- A C7 radiculopathy
- B left hemispheric lacunar infarct
- C posterior interosseous nerve palsy
- D radial nerve palsy
- E thoracic outlet syndrome

Answers

1. Answer: B
2. Answer: D
3. Answer: D
4. Answer: C
5. Answer: D
6. Answer: D
7. Answer: B
8. Answer: E
9. Answer: A
10. Answer: C
11. Answer: A
12. Answer: C
13. Answer: B
14. Answer: C
15. Answer: C
16. Answer: B
17. Answer: B
18. Answer: E
19. Answer: E
20. Answer: E
21. Answer: A
22. Answer: E
23. Answer: B
24. Answer: B
25. Answer: C