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KAPS Exam Paper 1

Sample Paper 1

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Information

This is a sample paper of the Knowledge Assessment of Pharmaceutical Sciences (KAPS) Paper 1 exam produced by the Australian Pharmacy Council Ltd (APC) for **practice purposes only**.

The KAPS Paper 1 exam consists of 100 multiple-choice-questions and candidates have 2 hours to complete it.

This sample paper demonstrates questions from all competency areas assessed in the exam. For additional information on the content areas candidates are encouraged to refer to the [KAPS exam guide and sample papers](#).

All questions in this sample paper are no longer used in our current exams and have been chosen to allow candidates to gain exposure to the format and layout of questions in the exam.

Live or actual KAPS Paper 1 exams will vary from this sample paper and are delivered by computer. An [online tutorial](#) is available and provides candidates with the opportunity to learn how to navigate through the exam software.

We have also included an answer sheet at the end of the paper.

Please note that while the sample paper is reviewed frequently, the APC does not guarantee that the answers are accurate once published due to interim changes that may occur in ever changing practice settings, guidelines or legislation.

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Sample Questions

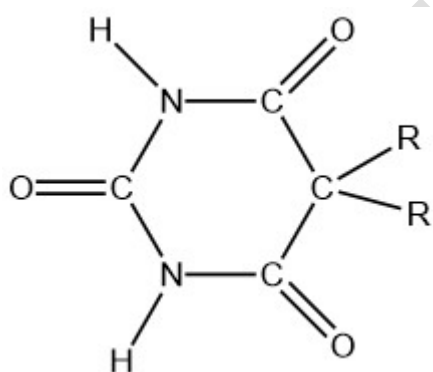
1. Bipolar disorder **CANNOT** be treated using which medication?

- A. Lithium
- B. Haloperidol
- C. Sodium valproate
- D. Paroxetine

2. Which ONE of the following statements about the structure and function of blood vessels is **CORRECT**?

- A. Arteries have thinner smooth muscle layers than veins
- B. Capillary walls have an elastic layer
- C. The pressure inside a vein is less than in an artery
- D. Capillaries provide the greatest resistance to blood flow

3. The structure below shows the basic formula for barbiturates.



What would this formula be chemically classified as?

- A. Acidic
- B. Amphoteric
- C. Basic
- D. Neutral

4. How does metformin act?

- A. Blocks absorption of glucose in the intestine
- B. Increases pancreatic insulin secretion
- C. Decreases hepatic glucose production
- D. Increases metabolism of ketone precursors

5. Which drug is used to prevent haemorrhagic cystitis in patients receiving cyclophosphamide?

- A. Methotrexate
- B. Mercaptopurine
- C. Dacarbazine
- D. Mesna

6. Which penicillin is effective in the presence of penicillinase?

- A. Amoxicillin
- B. Flucloxacillin
- C. Phenoxymethylpenicillin
- D. Ticarcillin

7. Which ONE of the following terms describes a person with normal thyroid function?

- A. Basal
- B. Euthyroid
- C. Hypothyroid
- D. Hyperthyroid

8. Patients are **MOST** likely to develop acute gout when treated with which ONE of the following?

- A. Colchicine
- B. Losartan
- C. Spironolactone
- D. Furosemide

9. Which of the following agents is a selective dopamine D₂ receptor agonist?

- A. Bromocriptine
- B. Promethazine
- C. Haloperidol
- D. Chlorpromazine

10. What is the pharmacological classification of cyproheptadine?

- A. Cholinergic agent
- B. Anti-serotonergic agent
- C. Prostaglandin synthesis inhibitor
- D. Histamine agonist

11. What is the normal range for haematocrit levels in a full blood count test for a healthy adult male?

- A. 26% to 30%
- B. 31% to 35%
- C. 36% to 40%
- D. 41% to 50%

12. Which ONE of the following statements is **TRUE** regarding angiotensin converting enzyme (ACE) inhibitors?

- A. Inhibit the conversion of angiotensin I to angiotensin II
- B. Are contraindicated with potassium sparing diuretics
- C. All have similar half-lives and duration of action
- D. Commonly cause a dry cough and angioedema

13. Which compound structure enables a drug to be detected by UV analysis?

- A. Aromatic ring
- B. Carboxyl group
- C. Primary amine
- D. Hydroxyl group

14. Which ONE of the following functional groups is **LEAST** stable?

- A. Alcohol
- B. Ketone
- C. Ester
- D. Ether

15. What is the main impact of effect of simvastatin on the lipid profile?

- A. Increased HDL cholesterol
- B. Decreased DHL cholesterol
- C. Decreased LDL cholesterol
- D. Increased triglycerides

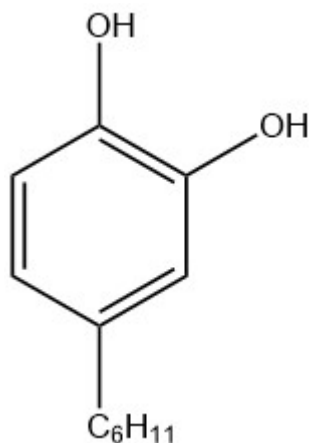
16. Which structure(s) prevent backflow of blood into the ventricles of the heart?

- A. Valves in the veins
- B. Atrio-ventricular valves
- C. Pericardium
- D. Aortic and pulmonary valves

17. Which condition may result from chronic iodine deficiency during adult life?

- A. Myxoedema
- B. Toxic adenoma of the thyroid
- C. Thyrotoxicosis
- D. Subclinical hyperthyroidism

18. The structure of hexylresorcinol is shown below.



What happens when this substance is exposed to light and air?

- A. It volatiles very readily
- B. It loses water to form the anhydride
- C. It reduces rapidly to form a white insoluble cake
- D. It oxidises

19. What is the pain associated with angina pectoris caused by?

- A. Spasm of the aorta
- B. Ventricular tachycardia
- C. Aortic stenosis
- D. Myocardial ischaemia

20. Where are alpha-1 adrenoreceptors primarily located?

- A. Arterioles
- B. Bronchioles
- C. Atria
- D. Cardiac ventricles

21. Which compound is an irreversible cholinesterase inhibitor?

- A. Physostigmine
- B. Pilocarpine
- C. Malathion
- D. Atropine

22. Which steroid has a markedly different physiological property to the other three?

- A. Norethisterone
- B. Levonorgestrel
- C. Nandrolone
- D. Megestrol

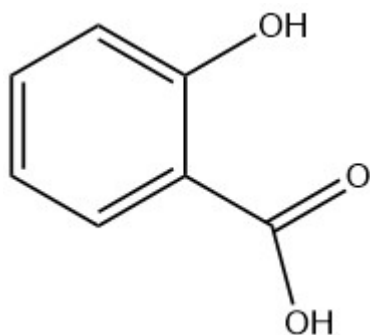
23. How does mebendazole function when used for the treatment of worm infestations?

- A. By inhibiting worm metabolism
- B. By inhibiting worm reproduction
- C. By blocking the absorption of nutrients
- D. By paralysing the worm, detaching them from the host

24. What is the effect of parathyroid hormone?

- A. Increased mobilisation of calcium from bone
- B. Decreased renal tubular reabsorption of calcium
- C. Decreased resorption of phosphate from bone
- D. Decreased excretion of phosphate

25. The following diagram represents the structure of which ONE of the following?



- A. Meta-hydroxybenzoic acid
- B. Para-hydroxybenzoic acid
- C. Levo-hydroxybenzoic acid
- D. Ortho-hydroxybenzoic acid

26. Where does the conjugation of bilirubin mainly occur?

- A. Erythrocyte
- B. Intestine
- C. Liver
- D. Kidney

27. What is the mode of action of warfarin?

- A. Converts plasminogen to plasmin
- B. Inhibits synthesis of vitamin K-dependent clotting factors
- C. Reversible inhibition of free and fibrin-bound thrombin
- D. Prevents binding of fibrinogen to platelets

28. Which ONE of the following statements is **CORRECT** regarding acne vulgaris?

- A. Usually results from blocked sweat glands
- B. Associated with the growth of *Cutibacterium acnes*
- C. Involves decreased differentiation of epithelial cells
- D. Caused by estrogen receptor activation

29. Uncomplicated urinary tract infections (UTIs) are **MOST** commonly caused by which organism?

- A. *Staphylococcus saprophyticus*
- B. *Campylobacter jejuni*
- C. *Giardia lamblia*
- D. *Moraxella catarrhali*

30. What is pityriasis versicolor?

- A. Acute inflammatory yeast infection characterised by a diffuse rash
- B. Symptomatic fungal infection affecting the beard area in males
- C. Yeast infection characterised by multiple patches varying in colour from white to brown
- D. Viral infection characterised by patches of red and brown colour

31. Activated charcoal is **MOST** useful in managing an overdose with which of the following drugs?

- A. Lithium
- B. Potassium
- C. Alcohol
- D. Digoxin

32. Why is levodopa the drug of choice in the treatment of Parkinson's disease?

- A. Dopamine does not readily pass the blood-brain barrier
- B. Tyrosine hydroxylase is a rate-limiting enzyme
- C. Peripheral nerves are deficient in methylating enzyme
- D. Levodopa is the precursor to dopamine

33. Which ONE of the following drugs is predominantly excreted unchanged?

- A. Fluoxetine
- B. Phenytoin
- C. Codeine
- D. Enalapril

34. Organophosphate poisoning must be treated by urgent administration of which drug?

- A. Epinephrine (adrenaline)
- B. Atropine
- C. Promethazine
- D. Physostigmine

35. How does sumatriptan exert its clinical effect?

- A. Antagonise the actions of serotonin
- B. Mimic the actions of serotonin
- C. Block the effects of dopamine
- D. Inhibit prostaglandin synthesis

36. When should doses of clomifene be taken for the treatment of infertility?

- A. Days 0-5 of the menstrual cycle
- B. Days 5-9 of the menstrual cycle
- C. Days 10-14 of the menstrual cycle
- D. Days 20-24 of the menstrual cycle

37. What is the daily recommended calcium intake for post-menopausal women?

- A. 300 - 600 mg
- B. 700 - 900 mg
- C. 1000 - 1500 mg
- D. 1600 - 2000 mg

38. Which ONE of the following is a "pure opioid antagonist"?

- A. Flumazenil
- B. Hydromorphone
- C. Naloxone
- D. Buprenorphine

39. What are anthracyclines used to treat?

- A. Anaemia
- B. Polycythaemia
- C. Vasculitis
- D. Leukemia

40. Estradiol is secreted from which part of the endocrine system?

- A. Hypothalamus
- B. Ovarian follicle
- C. Adrenal cortex
- D. Anterior pituitary

41. Gemfibrozil is used to treat which condition?

- A. Hyperlipidaemia
- B. Hyperglycaemia
- C. Hyperaldosteronism
- D. Hypertension

42. How do beta-adrenergic receptor agonists exert an inotropic effect on the myocardium?

- A. Increasing conversion of glycogen to glucose
- B. Activating lipases
- C. Decreasing phosphodiesterase levels
- D. Increasing intracellular calcium levels

43. Rickets develops from a deficiency of which ONE of the following?

- A. Vitamin A
- B. Vitamin B6
- C. Vitamin C
- D. Vitamin D

44. Which group of symptoms is **MOST** often associated with a patient who has signs of left-sided heart failure?

- A. Jugular venous distension, shortness of breath
- B. Hepatojugular reflux, abdominal distension
- C. Paroxysmal nocturnal dyspnoea, hepatojugular reflux
- D. Shortness of breath, paroxysmal nocturnal dyspnoea

45. What may systemic administration of atropine cause?

- A. Constriction of the pupil
- B. Increased gastric motility
- C. Micturition
- D. Increased heart rate

- 46.** Quetiapine does **NOT** have significant antagonist activity at which receptor?
- A. Dopamine
 - B. Muscarinic acetylcholine
 - C. Histamine
 - D. Serotonin
- 47.** Which condition is characterised by excess secretion of thyroid hormone?
- A. Addison's disease
 - B. Hashimoto thyroiditis
 - C. Grave's disease
 - D. Wilson's disease
- 48.** What is the mode of action by which timolol eye drops reduce intraocular pressure?
- A. Reduce aqueous humour production
 - B. Increase outflow of aqueous humour
 - C. Constriction of the pupil
 - D. Secondary to the effect to reduce blood pressure
- 49.** Tinnitus, headaches, nausea and sweating are symptoms or which ONE of the following adverse effects?
- A. Aspirin hypersensitivity
 - B. Paracetamol toxicity
 - C. Salicylate toxicity
 - D. Paracetamol hypersensitivity

50. When instilled in the eye, which drug causes the pupil to contract and the eye to focus for near vision?

- A. Atropine
- B. Timolol
- C. Pilocarpine
- D. Cyclopentolate

51. What is the primary pharmacological effect of isoprenaline?

- A. Blocks alpha adrenoceptors
- B. Stimulates beta adrenoceptors
- C. Releases noradrenaline from noradrenergic nerves
- D. Block dopaminergic receptor

52. A throat infection has spread to the eustachian tube.

Which structure would the infection **MOST** likely spread to next?

- A. Auditory nerve
- B. Inner ear
- C. Middle ear
- D. External auditory canal

53. How are the effects of doxycycline with therapeutically administered estrogens **BEST** described?

- A. Interfering with enterohepatic circulation of estrogens
- B. Impairing plasma protein binding of estrogens
- C. Increasing renal excretion of estrogens
- D. Blocking estrogens from binding at receptors

54. Furosemide increases the production of urine by increasing which **ONE** of the following?

- A. Filtration pressure
- B. Renal plasma flow
- C. Urinary pH
- D. Sodium excretion

55. Which **ONE** of the following is **NOT** a central neurotransmitter?

- A. Serotonin
- B. Noradrenaline
- C. Dopamine
- D. Cyclic adenosine phosphate

56. Which **ONE** of the following is **NOT** part of the mechanism by which glucocorticoids exert anti-inflammatory effects?

- A. Decreased secretion of proteolytic enzymes
- B. Reduction in the release of cytokines, such as IL-1 and IL-2
- C. Decreased number of circulating neutrophils
- D. Impairment of prostaglandin and leukotriene synthesis

57. Which **ONE** of the following is **NOT** an alkylating agent?

- A. Chlorambucil
- B. Cyclophosphamide
- C. Melphalan
- D. Cytarabine

58. Gelatine is primarily composed of which ONE of the following?

- A. Carbohydrate
- B. Protein
- C. Lipid
- D. Glycolipid

59. Why are corticosteroids effective in the treatment of acute asthma?

- A. They cause acute bronchodilation
- B. They reduce the inflammatory response
- C. They suppress precipitating infections
- D. They prevent mediator release from mast cells

60. What is the purpose of sodium metabisulphite when used in epinephrine (adrenaline) injections?

- A. Suspending agent
- B. Fungicide
- C. Antioxidant
- D. Bactericide

61. Why is epinephrine (adrenaline) formulated with some local anaesthetic solutions for injection?

- A. Decrease the local action of the anaesthetic
- B. Reduce local blood flow
- C. Increase the amount of local anaesthetic to administer
- D. Block nerve fibres by depolarising the membrane

62. How is biotransformation of phenobarbital in the liver catalysed?

- A. By the oxidative phosphorylation complex
- B. By the microsomal mixed function oxidases
- C. In the hexose monophosphate shunt
- D. In the gluconeogenic pathway

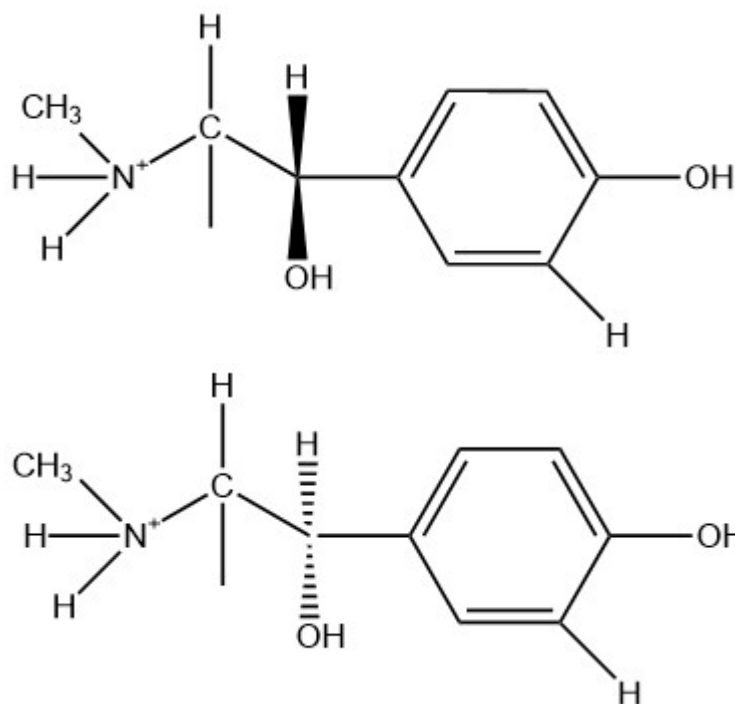
63. Which ONE of the following is a cationic surfactant?

- A. Sodium lauryl sulphate
- B. Cetrimide
- C. Sodium stearate
- D. Thioethanolamine stearate

64. Which of the following statements about the use of beta-blockers for the treatment of congestive heart failure is **INCORRECT**?

- A. May cause bradycardia
- B. Prevent ventricular remodelling
- C. Can increase ejection fraction
- D. Increase AV nodal conduction

65. What are these two compounds with the following formulae **BEST** described as?



- A. Diastereomer
- B. Optical enantiomorphs
- C. Conformational isomers
- D. Cis-trans isomers

66. Which ONE of the following is **NOT** a side effect of amitriptyline?

- A. Blurred vision
- B. Diarrhoea
- C. Dry mouth
- D. Urinary retention

67. Propranolol is **NOT** used to manage which condition?

- A. Oesophageal varices
- B. Angina pectoris
- C. Parkinson's disease
- D. Migraine

68. The composition of sweat is altered in which disease state?

- A. Hypothyroidism
- B. Glomerulonephritis
- C. Diabetes insipidus
- D. Cystic fibrosis

69. Which ONE of the following is a major determinant of myocardial oxygen demand?

- A. Systolic blood pressure
- B. Diastolic blood pressure
- C. Cardiac output
- D. Blood volume

70. Stevens-Johnson Syndrome is **MOST** likely to be caused by which drug?

- A. Atenolol
- B. Ramipril
- C. Leflunomide
- D. Amitriptyline

71. What causes muscle fatigue?

- A. Ischaemia due to atherosclerotic plaques
- B. Accumulation of lactic acid
- C. Lack of sufficient ATP molecules
- D. Accumulation of carbon dioxide

72. Benzodiazepines are **NOT** indicated for which ONE of the following?

- A. Muscle spasm
- B. Anxiety
- C. Depression
- D. Acute alcohol withdrawal

73. Which drug is the **MOST** useful for the management of metastatic bone pain?

- A. Meloxicam
- B. Fentanyl
- C. Amitriptyline
- D. Carbamazepine

74. Which ONE of the following describes the effect of salbutamol on adrenoreceptors?

- A. Relatively selective beta-2 agonist with alpha agonist activity
- B. Relatively selective beta-1 agonist without alpha agonist activity
- C. Relatively selective beta-2 agonist without alpha agonist activity
- D. Relatively selective beta-1 agonist with alpha agonist activity

75. What is the mode of action of phenytoin?

- A. Sodium channel blockade
- B. Binds to synaptic vesicle protein 2A
- C. Binds to voltage-dependent calcium channels
- D. Inhibits glutamate release

76. Which organ plays a major role in the immune system?

- A. Pancreas
- B. Thyroid
- C. Liver
- D. Thymus

77. Damage to the posterior pituitary may cause which ONE of the following?

- A. Lewy body dementia
- B. Decreases vasopressin release
- C. Cushing's syndrome
- D. Retarded growth

78. Which action of propranolol is **NOT** due to beta1-adrenoceptor blockade?

- A. Decrease in heart rate
- B. Prolongation of A-V conduction time
- C. Reduction in cardiac contractility
- D. Reduced peripheral blood flow

79. Death from acute paracetamol overdose is due to the accumulation of toxic metabolites resulting in which ONE of the following?

- A. Hepatic necrosis
- B. Cholestatic jaundice
- C. Acute renal failure
- D. Cirrhosis

80. How does colchicine relieve symptoms of an acute gout attack?

- A. Blocking PGE2 formation
- B. Blocking uric acid formulation
- C. Inhibiting neutrophil infiltration
- D. Increasing uric acid excretion

81. What is the main effect of vasopressin?

- A. To increase blood pressure, increasing formation of nephric filtrate
- B. To cause active transport of urea and uric acid from renal blood into tubules
- C. To inhibit aldosterone action
- D. To cause reabsorption of water

82. What is another acceptable name for isopropyl alcohol?

- A. Methanol
- B. 1,2-ethanediol
- C. 2-propanol
- D. 1-pentanol

83. Men with diabetes are at significantly higher risk of developing which ONE of the following conditions?

- A. Renal stenosis
- B. Macular depigmentation
- C. Testicular cancer
- D. Erectile dysfunction

84. What is a nosocomial infection?

- A. Acquired in a medical facility
- B. Transmitted by respiratory droplets
- C. Transmitted via contaminated water
- D. Affects mainly school aged children

85. Which ONE of the following is **NOT** a long-term complication of diabetes?

- A. Retinopathy
- B. Microangiopathy
- C. Paralytic ileus
- D. Neuropathy

86. Which pair below are examples of monosaccharides?

- A. Glucose and glycerine
- B. Maltose and sucrose
- C. Fructose and glucose
- D. Lactose and galactose

87. What drug can cause gingival hyperplasia after long-term treatment?

- A. Irbesartan
- B. Hydrochlorothiazide
- C. Propranolol
- D. Nifedipine

88. Which ONE of the following drugs is **LEAST** likely to need a dosage adjustment in a patient with reduced renal function?

- A. Haloperidol
- B. Metformin
- C. Digoxin
- D. Tobramycin

89. What is the morphology of a normal erythrocyte?

- A. Non-nucleated, biconcave disc
- B. Binucleated cell
- C. Non-nucleated convex disc
- D. Nucleated biconcave disc

90. What is the **MOST** appropriate treatment for an infestation of scabies?

- A. Permethrin
- B. Mebendazole
- C. Malathion
- D. Tinidazole

91. Which condition is characterised by destruction of myelin sheath surrounding nerve axons?

- A. Huntington's chorea
- B. Multiple sclerosis
- C. Parkinson's disease
- D. Tardive dyskinesia

92. What does oxidation of a secondary alcohol yield?

- A. Ketone
- B. Primary alcohol
- C. Aldehyde
- D. Ether

93. Which symptom is **LEAST** likely in a patient with diabetes mellitus?

- A. Urinary retention
- B. Excessive thirst
- C. Glycosuria
- D. Weight loss

94. Which statement is **CORRECT** regarding heart failure (HF)?

- A. Loop diuretics improve symptoms and survival in HF patients
- B. Ischaemic heart disease and hypertension are common causes of systolic dysfunction in HF
- C. Compensatory responses have beneficial effects to reduce progression of HF
- D. Angiotensin-converting enzyme inhibitor dose escalation is based on symptomatic improvement

- 95.** How does glyceryl trinitrate relieve the symptoms of angina pectoris?
- A. Reduces afterload
 - B. Increases myocardial perfusion
 - C. Constricts arterioles
 - D. Decreases heart rate
- 96.** Which ONE of the following should be regularly monitored in a patient taking amiodarone?
- A. Prostate specific antigen
 - B. Urinary cortisol
 - C. Serum creatinine
 - D. Thyroid function tests
- 97.** Which agent possesses the greatest degree of antihistaminic action?
- A. Citalopram
 - B. Doxepin
 - C. Diazepam
 - D. Oxazepam
- 98.** What is saponification defined as?
- A. Reaction of a glyceryl ester with alkali to form soaps and glycerol
 - B. Reaction of acids with bases to form salt(s) and water
 - C. Reaction of salts or esters with water to form acids and bases or alcohols
 - D. Reaction in which hydrogen atoms are added across a double bond

99. What is the mode of action of allopurinol?

- A. To increase renal excretion of uric acid
- B. To inhibit formation of uric acid
- C. To inhibit absorption of dietary purines
- D. To inhibit prostaglandin synthesis

100. Which ONE of the following antiepileptic drugs has activity against both generalised tonic-clonic seizures and generalised absence seizures?

- A. Phenytoin
- B. Gabapentin
- C. Valproate
- D. Carbamazepine

Answer sheet

Sequence Number	Correct Answer
1	D
2	C
3	A
4	C
5	D
6	B
7	B
8	D
9	A
10	B
11	D
12	A
13	A
14	C
15	C
16	D
17	A
18	D
19	D
20	A
21	C
22	C
23	C
24	A
25	D
26	C
27	B
28	B
29	A
30	C
31	D
32	D
33	D
34	B
35	B

Sequence Number	Correct Answer
36	B
37	C
38	C
39	D
40	B
41	A
42	D
43	D
44	D
45	D
46	B
47	C
48	A
49	C
50	C
51	B
52	C
53	A
54	D
55	D
56	C
57	D
58	B
59	B
60	C
61	B
62	B
63	B
64	D
65	C
66	B
67	C
68	D
69	C
70	C

Sequence Number	Correct Answer
71	B
72	C
73	A
74	C
75	A
76	D
77	B
78	D
79	A
80	C
81	D
82	C
83	D
84	A
85	C
86	C
87	D
88	A
89	A
90	A
91	B
92	A
93	A
94	B
95	B
96	B
97	B
98	A
99	B
100	C



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