



STAT

Sample Multiple-Choice Questions

Sample Questions

A selection of questions follows to give test takers an idea of the content type found in STAT.

Practice Tests for STAT Multiple Choice may be purchased via your account in the ACER registration portal.

UNIT 1

Questions 1 – 4

In this passage from an essay, F. Scott Fitzgerald, whose fiction is connected to the prosperity and extravagance of New York in the 1920s, has come back from overseas at the onset of the Great Depression of the 1930s. Alfred E. Smith was the president of the corporation that built and operated the Empire State Building.

In the dark autumn of two years later we saw New York again. We passed through curiously polite customs agents, and then with bowed head and hat in hand I walked reverently through the echoing tomb. Among the ruins a few childish wraiths still played to keep up the pretense that they were alive, betraying by their feverish voices and hectic cheeks the thinness of the masquerade. Cocktail parties, a last hollow survival from the days of carnival, echoed to the 5
plaints of the wounded: ‘Shoot me, for the love of God, someone shoot me!’, and the groans and wails of the dying: ‘Did you see that United States Steel is down three more points?’ My barber was back at work in his shop; again the head waiters bowed people to their tables, if there were people to be bowed. From the ruins, lonely and inexplicable as the sphinx, rose the Empire State Building and, just as it had been a tradition of mine to climb to the Plaza Roof to take leave of the beautiful city, extending as far as eyes could reach, so now I went 10
to the roof of the last and most magnificent of towers. Then I understood – everything was explained: I had discovered the crowning error of the city, its Pandora’s box. Full of vaunting pride the New Yorker had climbed here and seen with dismay what he had never suspected, that the city was not the endless succession of canyons that he had supposed but that it *had* 15
limits – from the tallest structure he saw for the first time that it faded out into the country on all sides, into an expanse of green and blue that alone was limitless. And with the awful realization that New York was a city after all and not a universe, the whole shining edifice that he had reared in his imagination came crashing to the ground. That was the rash gift of Alfred E. Smith to the citizens of New York. 20

1 The passage implies that the customs agents (line 2) and the head waiters (line 8) in earlier times had

- A had more prestigious jobs.
- B been warmer and less formal.
- C been less concerned about their jobs.
- D been more anxious to please customers.

2 The word ‘childish’ in line 3 indicates that some people have not

- A come to terms with the gravity of their situation.
- B understood that they need not repeat their mistakes.
- C been adult enough to avoid the disaster in the first place.
- D shown the selflessness required to help others in the same position.

- 3 For Fitzgerald, New York's demise was a result of a lack of
- A restraint.
 - B compassion.
 - C urban planning.
 - D economic planning.
- 4 In his picture of New York, Fitzgerald suggests that, for New Yorkers, the Great Depression began when
- A New York began to overflow its geographical limits.
 - B they understood that New York was a part of the world.
 - C New York had no further ambition to strive for excellence.
 - D they began to believe they were better than the rest of the world.

UNIT 2

Question 5

In the grid below, different letters represent different whole numbers less than 20. The numbers to the right and below the grid are row and column totals.

For example, $Q + L + Z + Z = 46$.

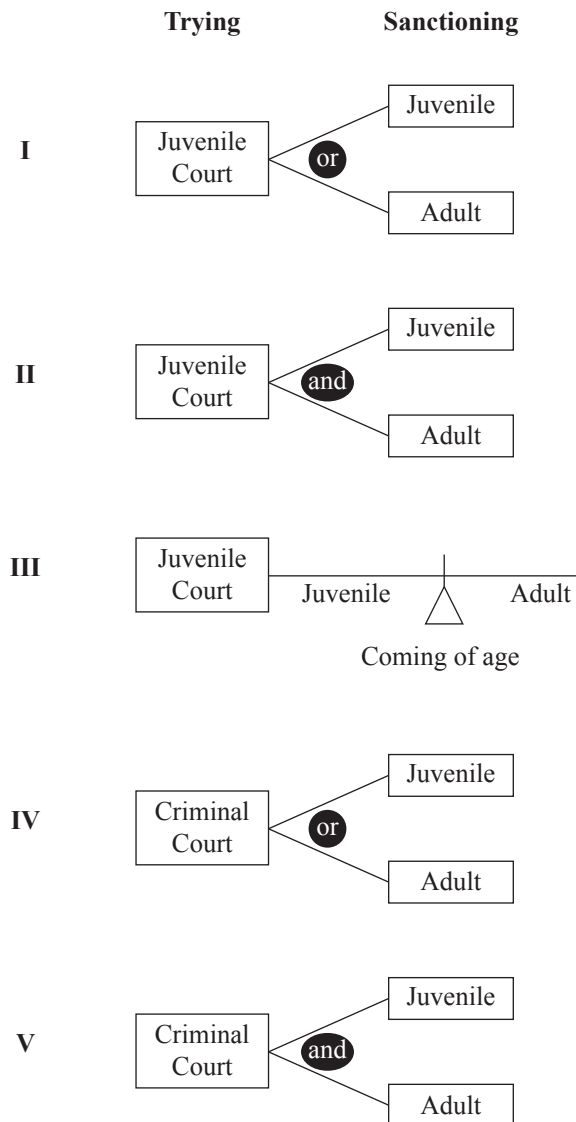
Q	L	Z	Z	46
K	K	K	K	28
K	K	Q	Q	32
K	Z	L	Q	40
30	38	X	Y	

- 5 The value of Q is
- A 7 .
 - C 11 .
 - B 9 .
 - D 13 .

UNIT 3

Questions 6 – 8

The following diagrams present overviews of how the legal systems of five different states in a certain country deal with trying and sanctioning juvenile offenders.



- 6 In which model would it be legally impossible for a juvenile to be incarcerated in an adult jail?
- A I
 - B II
 - C III
 - D IV

- 7 Systems **I** and **II** differ significantly from systems **IV** and **V** in
- A whether or not the offenders can be considered adults for the purposes of their sanctions.
 - B whether offenders are considered as juveniles prior to sentencing or after sentencing.
 - C the severity with which juveniles are sanctioned.
 - D the choices available for sanctioning.
- 8 From the point of view of an offender, which of the following pairs would have a similar range of possible outcomes?
- A **I** and **V**
 - B **II** and **IV**
 - C **III** and **V**
 - D **I** and **IV**

UNIT 4

Questions 9 – 11

When fighting forest fires, a major problem for firefighters is dealing with the heat. Heat enters, leaves or is produced in a firefighter's body by the following processes:

- 1 radiation — heat from the fire and the sun radiate to the firefighter's body
- 2 conduction/convection — body heat is carried away by the surrounding air
- 3 metabolism — heat is produced in the firefighter's body
- 4 evaporation of sweat — heat is removed from the firefighter's body when sweat evaporates from skin and clothing

In a study of firefighters in a state of heat balance, two groups of firefighters built a firebreak — a hard physical task. One group built their firebreak next to a fire. The other group did exactly the same work under the same conditions, except that no fire was burning nearby. The table below gives the average results for the firefighters in the two groups.

Process	Amount of heat gained or lost per minute by the body	
	fire nearby	no fire nearby
Radiation	gain of 260 joule	gain of 51 joule
Conduction / convection	loss of 60 joule	loss of 80 joule
Metabolism	gain of 488 joule	gain of 561 joule
Evaporation of sweat	loss of 688 joule	?

- Assume that the figures above apply to any individual firefighter.
- Although some of the processes above can transfer heat to or from a firefighter, this unit and the table refer to net gains or losses of heat by each process.

9 While building a firebreak, the body of a firefighter

- A loses heat by radiation and gains heat by conduction/convection.
- B loses heat by both radiation and by conduction/convection.
- C gains heat by radiation and loses heat by conduction/convection.
- D gains heat by both radiation and by conduction/convection.

10 The heat lost by evaporation of sweat from the body of a firefighter in one minute while building a firebreak without a fire nearby is

- A 532 joule.
- B 590 joule.
- C 612 joule.
- D 688 joule.

- 11 Which one of the following increases when a firefighter moves from an area where there is no fire nearby to an area where there is a fire nearby?
- A the amount of heat produced per minute by metabolism
 - B the amount of heat lost per minute by conduction/convection
 - C the amount of heat lost per minute by the evaporation of sweat
 - D none of A or B or C

UNIT 5

Question 12

‘It is useless for the sheep to pass resolutions in favour of vegetarianism while the wolf remains of a different opinion.’

Dean William Ing

- 12 The quotation is mainly about
- A power.
 - B ideology.
 - C conformity.
 - D controversy.

UNIT 6

Questions 13 – 16

At Runalong Fire Station there are seven firefighters (1, 2, 3, 4, 5, 6, 7). It is necessary to have three firefighters at the station each night in case of emergency, and the Firefighters' Union requires that each firefighter works the same number of nights.

Schedules I–IV were prepared for consideration.

	I	II	III	IV
Sunday	{1,2,4}	{1,2,4}	{1,2,4}	{1,2,4}
Monday	{2,3,5}	{2,3,5}	{2,3,5}	{2,3,5}
Tuesday	{3,4,6}	{3,4,6}	{3,4,6}	{3,4,6}
Wednesday	{4,5,7}	{4,5,7}	{1,2,4}	{4,5,7}
Thursday	{1,2,4}	{5,6,1}	{5,6,1}	{5,6,1}
Friday	{2,3,5}	{6,7,2}	{6,7,2}	{7,1,2}
Saturday	{3,4,6}	{7,1,3}	{7,1,3}	{6,1,3}

13 Which one of the schedules meets the requirements of the Firefighters' Union?

- | | |
|------|-------|
| A I | C III |
| B II | D IV |

Questions 14 – 16 refer to the following additional information:

A schedule can be thought of as a set of v objects (in this case, firefighters) that have to be arranged into b sets (in this case, one set for each day of the week) all of size k and such that each object occurs the same number of times (r) in the schedule and only once in any set. For the firefighters' schedules, $v = 7$, $b = 7$, $k = 3$, and $r = 3$.

14 If $v = 3$, $b = 6$, $k = 1$, $r = 2$, which one of the following completes the schedule $\{1\}, \{2\}, \{3\}, \{1\}, \{2\}, \dots$?

- | | |
|-----------|---------------------------|
| A $\{1\}$ | C $\{3\}$ |
| B $\{2\}$ | D neither A, nor B, nor C |

15 The schedule $\{1,2\}, \{2,3\}, \{x,y\}$ is a schedule for which $v = 3$, $b = 3$, $k = 2$, $r = 2$, if

- | | |
|--------------------|--------------------|
| A $x = 1, y = 2$. | C $x = 2, y = 2$. |
| B $x = 1, y = 3$. | D $x = 2, y = 3$. |

16 The schedule

{1,2,3}	{4,5,6}	{7,8,9}	{1,4,7}
{2,5,8}	{3,6,9}	{1,5,9}	{2,6,7}
{3,4,8}	{1,6,8}	{2,4,9}	{x,y,z}

is a schedule for which $v = 9$, $b = 12$, $k = 3$, $r = 4$, if

- | | |
|---------------------------|---------------------------|
| A $x = 1, y = 2, z = 4$. | C $x = 2, y = 4, z = 6$. |
| B $x = 1, y = 3, z = 5$. | D $x = 3, y = 5, z = 7$. |

UNIT 7

Questions 17 – 20

The following passage is from the introduction to a series of lectures on philosophy written in the early 1900s.

The history of philosophy is to a great extent that of a certain clash of human temperaments. Undignified as such a treatment may seem to some of my colleagues, I shall have to take account of this clash and explain a good many of the divergencies of philosophies by it. Of whatever temperament a professional philosopher is, he tries, when philosophising, to sink the fact of his temperament. Temperament is no conventionally recognised reason, so he urges impersonal reasons only for his conclusions. Yet his temperament really gives him a stronger bias than any of his more strictly objective premises. It loads the evidence for him one way or the other, making a more sentimental or more hard-hearted view of the universe, just as this fact or that principle would. He trusts his temperament. Wanting a universe that suits it, he believes in any representation of the universe that does suit it. He feels men of opposite temper to be out of key with the world's character, and in his heart considers them incompetent and 'not in it', in the philosophic business, even though they may far excel him in dialectical ability.

Yet in the forum he can make no claim, on the bare ground of his temperament, to superior discernment or authority. There arises thus a certain insincerity in our philosophic discussions: the potentest of all our premises is never mentioned. I am sure it would contribute to clearness if in these lectures we should break this rule and mention it, and I accordingly feel free to do so.

- 17 The passage implies that the writer's colleagues believe that philosophical argument is based on
- A disposition.
 - B trial and error.
 - C personal beliefs.
 - D objective principles.
- 18 The words 'a certain insincerity in our philosophic discussions' (lines 15 and 16) suggest that the writer thinks philosophers are often
- A prepared to lie to be convincing.
 - B aware that their arguments are illogical.
 - C unwilling to take into account the opinions of others.
 - D unwilling to acknowledge what influences their arguments.
- 19 The writer of the passage is most likely to agree with the idea that philosophical positions
- A are subjective.
 - B are devoid of emotion.
 - C must be universal and unchanging.
 - D must conform with facts about the outer world.
- 20 Which of the following best describes the language used in the passage?
- A arrogant
 - B hesitant and diffident
 - C sincere and measured
 - D belligerent and provocative

UNIT 8

Questions 21 – 25

In some areas of the world, marine birds such as kelp gulls feed on mussels which have been deposited on the beaches. To break open the shells, the birds carry the mussels to heights and drop them onto hard surfaces, such as rocks or wet beach sand.

Experimental evidence indicates that the minimum drop height required to fracture a mussel shell depends on its size, and also on the nature of the surface onto which it is dropped. Moreover, the speed on impact with the ground can be related to the mussel's drop height and its shell length.

The graphs in Figures 1 to 4 show the relationships between the size, impact speed and drop height of mussels. The figures are based on the results of extensive mussel-dropping experiments that attempted to simulate real conditions.

Assume that all mussels referred to in the following questions are described by these relationships.

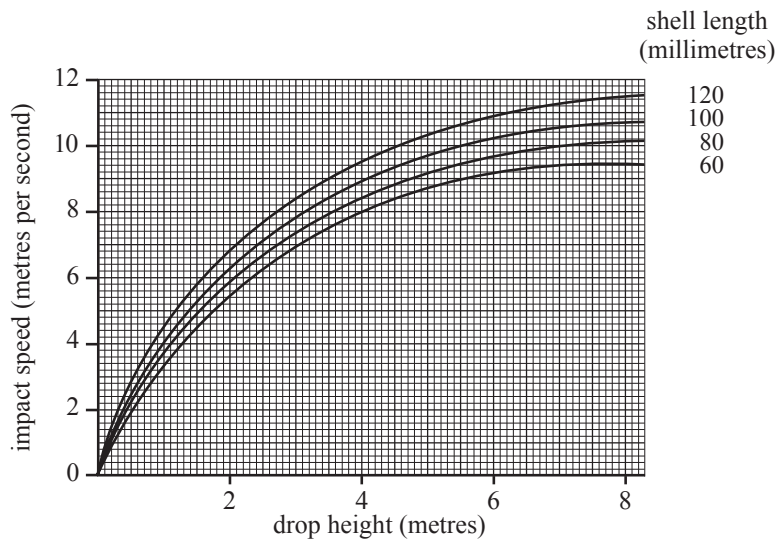


Figure 1

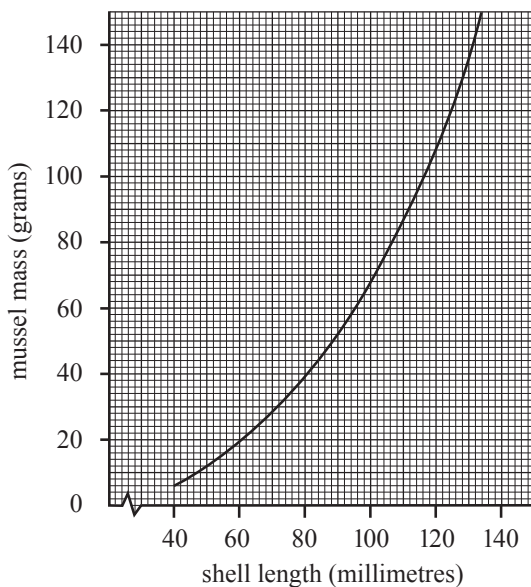


Figure 2

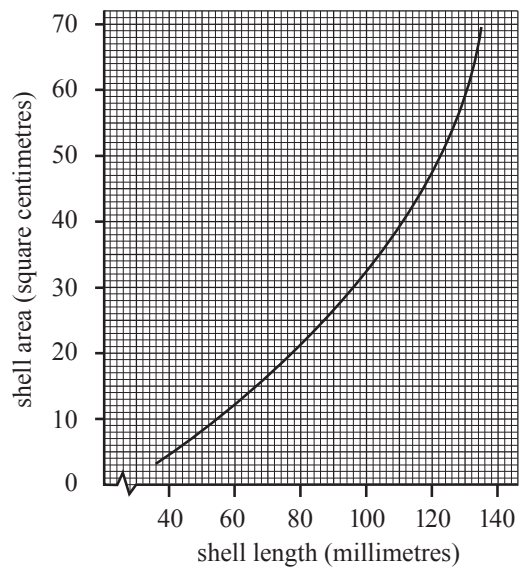


Figure 3

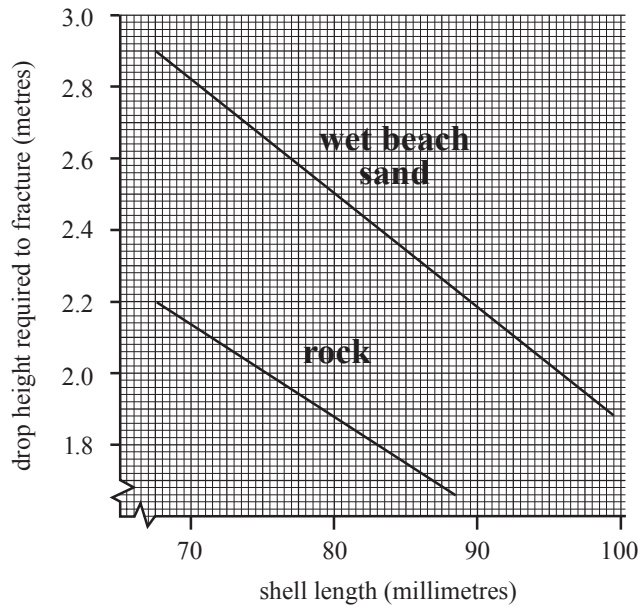


Figure 4

- 21** An 80 gram mussel has a shell area closest to
- | | |
|---------------------------------|---------------------------------|
| A 20 square centimetres. | C 40 square centimetres. |
| B 24 square centimetres. | D 45 square centimetres. |
- 22** Which one of the following is the smallest drop height required to fracture three mussels with lengths 75 millimetres, 85 millimetres, and 100 millimetres, when all three are dropped onto wet beach sand?
- | | |
|----------------------|----------------------|
| A 1.90 metres | C 2.67 metres |
| B 2.35 metres | D 3.00 metres |
- 23** Two mussels are dropped from a height of 2.5 metres onto wet beach sand. Mussel *X* has a mass of 30 grams and mussel *Y* has a mass of 60 grams.
- According to the available evidence,
- | | |
|--|--|
| A only mussel <i>X</i> will fracture. | C both mussels will fracture. |
| B only mussel <i>Y</i> will fracture. | D neither mussel will fracture. |

24 For a group of mussels, all of which have a shell length of 80 millimetres, the difference between the drop heights required to fracture the mussels when they drop onto rock and wet beach sand is closest to

- A 0.6 metres.
- B 1.0 metres.
- C 1.9 metres.
- D 2.5 metres.

25 Which of the following is closest to the lowest impact speed required to fracture a 30 gram mussel by impact with wet beach sand?

- A 5.5 metres per second
- B 6.8 metres per second
- C 8.4 metres per second
- D 10 metres per second

UNIT 9

Question 26

26 Which two of statements (i) – (iv) below are most similar to each other in the attitude to equality presented?

- (i) Although men possess unequal powers, they nonetheless deserve equal rights.
- (ii) Men are made by nature unequal. It is vain, therefore, to treat them as if they were equal.
- (iii) Kneeling ne'er spoil'd silk stocking; quit thy state;
All equal are within the church's gate.
- (iv) The wealth of a nation consists more than anything else in the number of superior men it harbours.

- A statements (i) and (iii)
- B statements (ii) and (iii)
- C statements (i) and (iv)
- D statements (iii) and (iv)

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South African Association for the Advancement of Science for the extract from 'Musseldropping behaviour of kelp gulls' by WR Seigfried in *South African Journal of Science*, Vol 73, Nov 1977; Budd, Graeme for the extract from 'Safer bushfire fighting', *Australasian Science*, Feb, 1998.

Answers

Unit 1: Fitzgerald's Lost City (V)

- 1 C
- 2 A
- 3 A
- 4 B

Unit 2: Grid (Q)

- 5 B

Unit 3: Juvenile Court (V)

- 6 C
- 7 B
- 8 D

Unit 4: Firefighters (Q)

- 9 C
- 10 A
- 11 C

Unit 5: Wolf and Sheep Quote (V)

- 12 A

Unit 6: Runalong Fire Station (Q)

- 13 B
- 14 C
- 15 B
- 16 D

Unit 7: Philosophy and Temperament (V)

- 17 D
- 18 D
- 19 A
- 20 C

Unit 8: Mussels (Q)

- 21 C
- 22 C
- 23 B
- 24 A
- 25 B

Unit 9: Statements (V)

- 26 A