

**THE AGA KHAN UNIVERSITY**

**SAMPLE TEST PAPER 2024**

**PhD Programme**

**SECTION I**

**English**

**Time allowed: 1 hour**

**INSTRUCTIONS:**

The Aga Khan University English test is a sophisticated test of grammar and vocabulary in academic contexts. The test consists of five sub-sections, to be completed in ONE hour. Candidates may log on to [www.englishlanguagetesting.co.uk](http://www.englishlanguagetesting.co.uk) for additional practice test.

Please read the following instructions carefully.

1. Attempt all questions.
2. Mark ONLY ONE answer to each MCQ. No credit will be given for multiple answers.
3. There are five sub-sections in this question paper.
  - a. Section 15 questions
  - b. Section 12 questions
  - c. Section 1 questions
  - d. Section 09 questions
  - e. Section 09 questions

**Discipline**

*The University expects honesty from applicants. Dishonest behavior during the Test or violation of instructions will result in irrevocable disqualification of the applicant from entering the selection process.*

## ENGLISH

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### SECTION 'A'

There are 15 questions in Section A.

Choose the correct answers (A, B or C) and mark them on the answer sheet.

Look at the example below. Choose the best word to complete the space:

Asking for a pen

Student A: Do you have a pen?

Student B: Yes. There \_\_\_\_\_ a pen in my bag.

- A. is
- B. does
- C. have

### SECTION 'B'

There are 12 questions in Section B.

Choose the correct answers (A, B or C) and mark them on the answer sheet.

Look at the example below. Choose the best words to complete the spaces:

The Campus

The University has \_\_\_\_ (i) \_\_\_\_ very heavily in teaching and learning facilities and \_\_\_\_ (ii) \_\_\_\_ to ensure that we offer modern, high quality environment in which our students can live and study happily and effectively.

Space (i)

- i. costed
- ii. **invested**
- iii. spent

Space (ii)

- A. **accommodation**
- B. accommodates
- C. accommodating

### SECTION 'C'

There are 16 questions in Section C.

Choose the correct answers (A, B, C, D or E) and mark them on the answer sheet.

Look at the example below. Choose the word most like the one in italics, in this example the word is registered:

“When you arrive at the university you will be *registered* at the faculty office.”

Which word is closest to registered?

- A. Functioned
- B. Participated
- C. Resigned
- D. Recorded**
- E. Estimated

### SECTION 'D'

There are 9 questions in Section D.

Choose the correct answers (A, B, C, D or E) and mark them on the answer sheet.

Look at the example below. Choose the word most often used with the one in italics, in this example lounge:

“Please go to the *lounge*”

Which word is most often used with *lounge*?

- A. train lounge
- B. meeting lounge
- C. departure lounge**
- D. information lounge
- E. waiting lounge

## SECTION 'E'

There are 9 questions in Section E, each with three or four parts. Decide if each is right or wrong in English and mark them on the answer sheet.

### *Example:*

*Each question has three parts ((i), (ii) and (iii)) or four parts ((i), (ii), (iii) and (iv)). Decide if each is right or wrong in English. None, some or all may be right. Look at the example below. In this example (i), (iii) and (iv) are RIGHT and (ii) is WRONG.*

|       |   |              |              |
|-------|---|--------------|--------------|
| (i)   | Thank you for completing your application for the University of Newbury. Before you submit your forms, remember to <b>keep</b> a copy for your records.   | <b>RIGHT</b> | WRONG        |
| (ii)  | Thank you for completing your application for the University of Newbury. Before you submit your forms, remember to <b>remain</b> a copy for your records. | WRONG        | <b>WRONG</b> |
| (iii) | Thank you for completing your application for the University of Newbury. Before you submit your forms, remember to <b>save</b> a copy for your records.   | <b>RIGHT</b> | WRONG        |
| (iv)  | Thank you for completing your application for the University of Newbury. Before you submit your forms, remember to <b>make</b> a copy for your records.   | <b>RIGHT</b> | WRONG        |

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**SECTION II**

**Quantitative Reasoning**

**Time allowed: 60 minutes**

**INSTRUCTIONS:**

**Please read the following instructions carefully.**

1. Mark **ONLY ONE** answers to each MCQ. No credit will be given for multiple answers.
2. There will be 40 MCQ based questions in this section.
3. Attempt all questions.

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## TABLE OF SPECIFICATION

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- i. Arithmetic (30%)
- ii. Information Handling – Graphs & Tables (40%)
- iii. Logical Reasoning – Application of Algebra / Geometry (30%)
- 

1. Which of the following quantities is the largest?

- A. 45%
- B. 0.5%
- C.  $\frac{3}{4}$
- D. 0.6666

| A | B | C | D |
|---|---|---|---|
|   |   |   |   |

2.  $\frac{1}{4} + \left[ \frac{4}{3} \times \frac{3}{5} \right] - \left[ \frac{1}{4} \div \frac{4}{5} \right]$  is equal to

- A.  $\frac{59}{80}$
- B.  $\frac{17}{82}$
- C.  $\frac{16}{15}$
- D.  $\frac{6}{7}$

| A | B | C | D |
|---|---|---|---|
|   |   |   |   |

3. The cost of a book increased from Rs. 600 to Rs. 624. The increase in cost is

- A. 4%
- B. 24%
- C. 104%
- D. 124%

| A | B | C | D |
|---|---|---|---|
|   |   |   |   |

4. A toy helicopter normally cost Rs. 600. Bilal bought the toy helicopter when the price was reduced by 30%. How much did Bilal save?

- A. Rs. 420
- B. Rs. 300
- C. Rs. 240
- D. Rs. 180

| A | B | C | D |
|---|---|---|---|
|   |   |   |   |

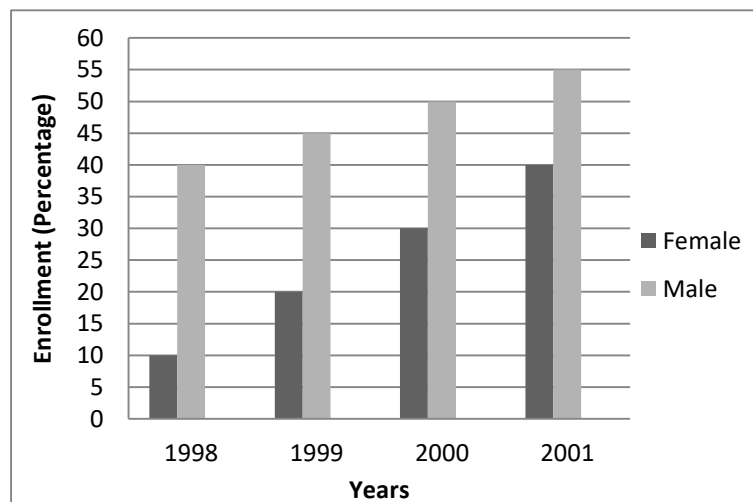
5. Three bells A, B & C ring simultaneously at 6:00 am. Now Bell A will ring after every 15 minutes, Bell B after every 20 minutes and Bell C after 30 minutes. At what time will all the three bells ring together again?

- A. 6:15 am
- B. 6:20 am
- C. 6:30 am
- D. 7:00 am

| A | B | C | D |
|---|---|---|---|
|   |   |   |   |

6. The graph below shows percentage of female and male students' enrollment in engineering college over four years. If the trends of female and male enrollment in engineering colleges continue for the next 10 years, determine the year in which the enrollment of female students will be same as the male students?

- A. 2003
- B. 2004
- C. 2005
- D. 2006



| A | B | C | D |
|---|---|---|---|
|   |   |   |   |

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**PhD Programme**

**SECTION III**

**Specialty Specific Paper**

**Time allowed: 1 hour and 45 minutes**

**INSTRUCTIONS:**

**Please read the following instructions carefully.**

1. Mark **ONLY ONE** answers to each MCQ. No credit will be given for multiple answers.
2. There will be 40 MCQ's and 3 SEQ's in this section
3. Attempt all questions.

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**Section III**  
**Specialty Specific Questions**

**BIOLOGICAL SCIENCES**

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- Q1. Decrease in the ration of diffusion of a substance across the plasma membrane will occur due to increase in
- A. its concentration gradient
  - B. surface area of membrane
  - C. membrane thickness**
  - D. temperature
- Q2. Repolarisation of a nerve action potential is due to
- A. Na<sup>+</sup>/K<sup>+</sup> ATPase pump
  - B. increased permeability to Na<sup>+</sup>
  - C. increased afflux of K<sup>+</sup>
  - D. opening of Ca<sup>++</sup>-channels**
- Q3. Based on the amount of genetic material that they contain, sex cells are said to be:
- A. diploid
  - B. autosomal
  - C. haploid
  - D. X-linked**
  - E. Europe
- Q4. The synthesis of a protein chain from an RNA molecule occurs through the process of:
- A. cell cycle
  - B. replication
  - C. translation**
  - D. semi-conservative replication

**Example: Short Essay Question (SEQ)**

- Q5. 'Biological systems do not have uni-directional switches that lead to uncontrolled cell growth and proliferation. Instead, cellular activity is tightly regulated so that cells can response to specific situations'.  
Please use example to indicate whether the statement is valid or invalid.

**Section III**  
**Specialty Specific Questions**

**CLINICAL SCIENCES**

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Q1. A 45-year-old male presents to the clinic with a 3-day history of perianal swelling and pain after passing hard stool. A few drops of fresh blood also dripped after this episode. Examination reveals a fissure at 7 o'clock position.

**The most appropriate management at this stage is:**

- A. anal dilatation
- B. analgesic and stool softner**
- C. drainage under local anesthesia
- D. pudendal nerve block

Q2. A 30-year-old lady is brought to the emergency room with a history of severe headache, neck stiffness and right sided weakness over a period of 1 hour. On examination BP is 180/110, HR 60.min, GCS 10-11/15 and pupils are equal and reactive.

**The most likely cause of the clinical condition is:**

- A. bacterial meningitis
- B. ischaemic stroke
- C. migraine
- D. ruptured aneurysm
- E. viral encephalitis

Q3. A 78-year-old man with hypertension and hyperlipidemia presented to the emergency room with crushing chest pain in the left substernal area for 6 hours. He has no prior episode of similar symptoms. Current medical include aspirin, hydrochlorothiazide and atorvastatin. On examination, BP is 100/70 mm Hg, Pulse is 100/min and Respiratory rate is 16/min. There is no jugular venous distention. Auscultation reveals no cardiac murmurs or rubs.

**The most likely diagnosis is:**

- A. Myocardial ischaemia
- B. Myocarditis
- C. Peptic ulcer
- D. Pleuritis
- E. Reflux esophagitis

**Example: Short Essay Question (SEQ)**

- Q4. A 4 year old boy is brought by parents to the emergency room. Father says the Child stumbled and fell in the drawing room and is not moving the right arm since then. On examination the child appears afraid, has swelling over the right arm. X-ray reveals a spiral fracture of the humerus shaft.
- A. What is the most likely diagnosis?
  - B. What will you examine in the child to confirm the diagnosis?
  - C. If a chest X-ray is done, what is it likely to show?

**Section III**  
**Specialty Specific Questions**

**NURSING**

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- Q1. A client is admitted to the hospital with a diagnosis of cholecystitis from Cholelithiasis. The client is complaining of severe abdominal pain and extreme nausea and has vomited several times. Based on this data, which nursing diagnosis would have the highest priority for the intervention at this time?
- A. Anxiety related to severe abdominal discomfort
  - B. Deficient fluid volume related to vomiting
  - C. Pain related to gallbladder inflammation**
  - D. Imbalanced nutrition related to vomiting
- Q2. A 28-year-old client, weighing 80 kg, underwent an appendectomy yesterday. He was given morphine sulfate 15 mg IM, 45 minutes ago. He states that his pain is still severe. Which action by the nurse is most appropriate?
- A. Administer another dose of Morphine
  - B. Explain that medication has not reached its full effect
  - C. Record in the file that the analgesic was not effective
  - D. Use complementary measures, such as relaxation techniques**

**Example: Short Essay Question (SEQ)**

- Q3. There are several misconceptions about Evidence-based nursing (EBN)? In your view, which one of the following is not a misconception; explain the rationale for your selected answer.
- A. EBN considers patient preferences and values
  - B. EBN is atheoretical
  - C. EBN is only about quantitative research
  - D. EBN requires only randomized controlled trials

**Section III**  
**Specialty Specific Questions**

**POPULATION AND PUBLIC HEALTH**

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- Q1. Exclusive breast feeding is recommended by World Health Organisation up to 6 months of age. What proportion of infants are exclusively breast fed up to the age of 6 months in Pakistan?
- A. 30%
  - B. 85%
  - C. 75%
  - D. 80%
  - E. **65%**
- Q2. In hypothesis testing,  $\beta$  is the probability of committing Type II error, so, the power of the test  $(1 - \beta)$  can be defined as:
- A. **the probability of rejecting  $H_0$  when  $H_A$  is true**
  - B. the probability of failing to reject  $H_0$  when  $H_A$  is true
  - C. the probability of failing to reject  $H_0$  when  $H_0$  is true
  - D. the probability of rejecting to reject  $H_0$  when  $H_0$  is true
  - E. the probability failing to reject  $H_0$
- Q3. Environmental factors contribute to approximately 25% of total global burden of diseases. However, its share of burden varies in different region of the world. The highest contributor to environmental burden of diseases **pre person** is:
- E. North America
  - F. South Asia
  - G. **Africa**
  - H. Australia
  - I. Europe

**Example: Short Essay Question (SEQ)**

- Q4. National Aids control programme of Pakistan has established a sentinel surveillance of HIV through ante-natal clinics in some of the government run hospitals in the four provinces of Pakistan. Can you generalize its results to Pakistani women. Explain.