

Introduction

Peregrine Academic Services, the higher education division of Peregrine Global Services, provides assessment services for performing direct assessment of learning outcomes for several academic disciplines. The online exams are used to evaluate retained student knowledge in relation to the academic program's learning outcomes.

This document outlines the **Global Business Administration** assessment service for undergraduate academic degree levels.

This assessment service is designed for use by schools and programs outside the United States.

Validity and Reliability

Peregrine Academic Services places a high priority on ensuring the validity and reliability of the assessment services. These practices begin at the design stage and continue through beta-testing, and with ongoing regularly scheduled quality reviews. A summary of these approaches is provided at the end of this document. For additional information regarding the reliability process, please refer to the following peer-reviewed article:

Oedekoven, O. O., Napolitano, M., Lemmon, J., & Zaiontz, C. (2019). Determining test bank reliability. *Transnational Journal of Business*, 4(Summer), 63-74.

Testing Process

The exams include 10 questions for each exam topic. Each exam is unique as questions are selected at random from the test bank of over 200 questions per topic. Institutions select the topics to be included in the exam to align with the learning outcomes and program curriculum.

Available Exam Topics

The specific topics for this assessment service that are available for use with a customized assessment are:

- Accounting
- Business Ethics
- Business Finance
- Business Integration and Strategic Management
- Business Leadership
- Economics
 - Macroeconomics
 - Microeconomics
- Global Dimensions of Business
- Information Management Systems
- Legal Environment of Business
- Management
 - Human Resource Management
 - Operations/Production Management
 - Organizational Behavior
- Marketing
- Quantitative Research Techniques/Statistics

Subjects and Example Questions

The following pages include the specific subjects included with the topics along with example questions for the topic. These specific questions have been inactivated within the test bank and are shown in this document only to illustrate the types of questions that are presented to learners.

Test bank questions are written and proofed by terminally degreed, subject matter experts from accredited institutions who have teaching experience with the specific discipline. The criteria for a test bank question include:

- Test questions may be questions or (incomplete) statements.
- All multiple-choice format with 4 possible responses and only one correct response.
- All responses must be plausible and not misleading.
- “All of the Above” (or similar) or “None of the Above” or “A & C” responses are not used.
- All incorrect responses are assigned Response Distractors:

<u>Response Distractor</u>	<u>Student’s response indicates they...</u>
<i>Fact-based error</i>	...do not know the fact(s).
<i>Concept-based error</i>	...misunderstood the concept.
<i>Conclusion-base error</i>	...reached an incorrect conclusion.
<i>Interpretation-based error</i>	...incorrectly interpreted the question.
<i>Calculation-based error</i>	...made an error with a math-related calculation.

Accounting

Subjects

- **Accounting Management** (Questions related to accrual accounting, revenues and expenses, the balance sheet, and inventory accounts)
- **Assets and Liabilities** (Questions related to accounts receivable, write-offs, collectable accounts, and buyer's records)
- **Balance Sheet** (Questions related to time frames associated with balance sheets, the statement of financial position, accounts receivable, and valuation of inventories)
- **Business Organization Types** (Questions related to forms of business organizations)
- **Capital** (Questions related to paid-in-capital, value of stock, distributions of earnings, and par value)
- **Debit and Credit Entries** (Questions related to accounts receivable, transactions, last in first out, first in first out, and notes receivable)
- **Fiscal Year** (Questions related to the firm's operating cycle, equity balance sheet, assets, owner's equity, and liabilities)
- **Income and Costs** (Questions related to inventory cost flow assumption, balance sheet inventories, cash balances, and general ledger accounts)
- **Income Statement** (Questions related to revenues, gains, expenses, and losses)
- **Revenues and Expenses** (Questions related to operating activities, net assets, cash disbursements, and common stock)
- **Transaction Analysis** (Questions related to matching revenue and expenses, notes payable, reconciliation, and adjustments)

Example Questions

The beginning inventory of the current year is overstated by €5,000 and closing inventory is overstated by €12,000. These errors will cause the net income for the current year to be .

- A. overstated by €17,000
- B. understated by €12,000
- C. overstated by €7,000
- D. understated by €7,000

Correct Response: C

Accounting

Example Questions

There are five main types of current assets. Which one of the following is not a current asset?

- A. Cash and equivalents
- B. Accounts receivable
- C. Deferred income
- D. Prepaid expenses

Correct Response: C

Business Ethics

Subjects

- **Ethical Beliefs** (Questions related to ethical ideas, employee benefits, cross-cultural contradictions, ethical relationships, and ethical guidelines)
- **International Regulation** (Questions related to global code of conduct, monopolies, harmonization statutes, and laws and regulations)
- **Shareholders** (Questions related to maximum profits, and policies)
- **Social Responsibility** (Questions related to human rights, positive reputation, stewardship, and ownership theory)
- **Stakeholder Analysis** (Questions related to international coalitions, communications technology, stakeholder relationships, nonmarket stakeholders, stakeholder groups, and stakeholder management)

Example Questions

An ethical issue is a problem, situation, or opportunity _____.

- A. that has no correct answer
- B. requiring an individual, group, or organization to choose among several actions that must be evaluated as right or wrong, ethical or unethical
- C. requiring an individual, group, or organization to choose between harming consumers or the environment and earning more profits
- D. requiring society as a whole to choose among several actions that must be evaluated as right or wrong

Correct Response: B

An ethical investor is one who _____.

- A. aims to invest in ethical corporate behavior and avoid unethical companies
- B. supports the giving of corporate money to charities
- C. supports company growth and full employment
- D. sells ethical stocks and shares portfolios to investors

Correct Response: A

Business Finance

Subjects

- **Business Ownership** (Questions related to the forms of business structure, capital structure, stockholders, and corporate governance)
- **Capital Costs** (Questions related to capital structure, leverage, and the cost of capital)
- **Debt-to-Equity Ratio** (Questions related to the return on equity, the cost of capital, asset turnover, and profit margin)
- **Equity** (Questions related to the increase in risk, financial leverage, and debt-equity ratio)
- **Financial Leverage** (Questions related to capital structure)
- **Financial Personnel** (Questions related to shareholders' interests, financial managers, and compensation)
- **Financial Planning** (Questions related to long-term financial planning, desired levels of growth, and investment activities)
- **Financial Ratios** (Questions related to financial information, comparison statements, and solvency)
- **Financial Statements** (Questions related to financial statements, and projected future financial statements)
- **Interest** (Questions related to tax shields, required rate of return, capital structure, net cost of debt, and the cost of equity)
- **Profit Margins** (Questions related to sustainable growth, stocks, profit margin, asset requirement ratio, dividend payout ratio)
- **Ratio Analysis** (Questions related to quick ratio, current ratio, sustainable growth, total asset turnover ratio, operating costs, and the cash flow position)
- **Stocks and Bonds** (Questions related to the stock valuation model, current stock prices, annual dividend, and corporate bonds)

Example Questions

John is a major shareholder of a company. He is quite upset with the firm's management and has decided to try to gain control by soliciting enough shareholder votes to replace the current managers. Which one of the following terms is used to describe this attempt?

- A. Going private
- B. Proxy contest
- C. Stock swap
- D. Leveraged buyout

Correct Response: B

Business Finance

Example Questions

Blue Ocean Tours has a cost of equity of 14.28 percent and a pre-tax cost of debt of 8.1 percent. The debt-equity ratio is 0.60 and the tax rate is 34 percent. What is the firm's unlevered cost of capital?

- A. 9.80 percent
- B. 12.53 percent
- C. 13.10 percent
- D. 14.10 percent

Correct Response: B

Business Integration and Strategic Management

Subjects:

- **Business Level Strategy** (Questions related to what businesses compete in, and how businesses can be managed to achieve synergy)
- **Buying Power** (Questions related to bargaining power, undifferentiated and standard products, and distribution channel intermediaries)
- **Competitive Intelligence** (Questions related to information gathering from public domains, and sources of information)
- **Corporate Structure and Governance** (Questions related to assessing changes competitive position, human resource management, business models, and the marketing department)
- **Employee Motivation** (Questions related to the focus of responsibility, and departmental output)
- **Entry Behaviors** (Questions related to costs, exit barriers, access to raw materials, economies of scale, and capital requirements)
- **Environmental Monitoring** (Questions related to sociocultural changes in the environment, new entrants, environmental trends, and the environmental scanning process)
- **Goals and Objectives** (Questions related to changes in strategy, short-term profit maximization, and social responsibility)
- **Inventory Management** (Questions related to inventory systems)
- **Market Entry** (Questions related to complementary products, substitute products, and market changes)
- **Mission and Vision** (Questions related to competition and competitive advantage, hierarchy of goals, the organization's purpose and direction)
- **Stakeholder Analysis** (Questions related to a firm's stakeholders)
- **Value Chain Analysis** (Questions related to sustainable advantages, enhancing a firms' capabilities, manufacturing operations, and business models)

Example Questions

Buyer power is high if _____.

- A. differentiation is low
- B. switching costs are high
- C. buyers have little information
- D. access to distribution channels is difficult

Correct Response: A

Business Integration and Strategic Management

Example Questions

Successful business relationships tend to _____.

- A. Combine relational contracts – to build trust in the long term – with transactional contracts to cover specific situations
- B. Depend upon tightly written legal contracts that take account of every potential problem or issue
- C. Rely upon firms being able to trust their employees and partners
- D. Be treated as finite games that both parties know will end sooner or later

Correct Response: A

Business Leadership

Subjects

- **Leader Roles and Responsibilities** (Questions related to the leadership process, the psychological perspective of leadership, leadership tools, and the components of leadership)
- **Leader-Follower Relationships** (Questions related to group consent, status, types of followers, and the relationship process)
- **Leadership Models and Theories** (Questions related to the social construct of leadership, group- emergent leadership, influence, and status)
- **Reward and Punishment** (Questions related to group cohesion, contingencies, perception, and behavior)
- **The Nature of Leadership** (Questions related to personality and traits, and leadership qualities)
- **Types of Power** (Questions related to conformity, legitimate power, legitimizing basis of power, and combinations of power)

Example Questions

With the rapid dispersion of information technology and communication, leaders are being forced to deal with followers who may be working in another part of the world. Which one of the following is true as far as online leadership is concerned?

- Effective online leaders need to develop the skill of deciphering the emotional components of messages.
- The digital age can never transform non-leaders into leaders.
- Managers whose face-to-face leadership skills are less than satisfactory can shine online.
- The online leader has received considerable attention from leadership experts.

Correct Response: A

Business Leadership

Example Questions

Studies have found that successful top executives differ significantly from the general population in terms of a certain personal characteristic. The difference has also been found to be linked to organizational effectiveness. Which one of these is the identified personal characteristic of successful top executives?

- A. Greater emotional intelligence
- B. More ambition
- C. Higher Intelligence Quotient (IQ)
- D. Charismatic personality

Correct Response: A

Economics

Sub-Topic: Macroeconomics

Subjects

- **Business Cycle** (Questions related to what the business cycle depicts)
- **Consumption and Saving** (Questions related to investment vs. consumption, disposable income, and savings)
- **Economic Analysis** (Questions related to short-run vs. long-run, investment spending, increasing investment, and inventory levels)
- **Economic Investment** (Questions related to defining economic investment and investing in capital)
- **Employment Analysis** (Questions related to unemployment and employment rates)
- **Gross Domestic Product** (Questions related to economic growth rates, real GDP, and moderate economic growth)
- **Inflation and Deflation** (Questions related to the rate of inflation or deflation)
- **Interest Rates** (Questions related to real interest rates, level of investment, and defining real interest rates)
- **Recession and Depression** (Questions related to the definitions of recession and depression)
- **Supply and Demand** (Questions related to investment demand curve and demand shocks)

Example Questions

Which of the following is not part of the real business cycle explanation of business cycles?

- A. Wage flexibility keeps output close to its potential level.
- B. Output fluctuates because of fluctuations in aggregate supply.
- C. Aggregate supply fluctuates because of fluctuations in the demand for labor.
- D. Labor demand might fall if technology increases faster than expected.

Correct Response: D

Economics

Sub-Topic: Macroeconomics

Example Questions

There are many reasons why a poor country may fail to catch up with a rich neighbor. Which one of the following is not one of these reasons?

- A. The poor country may have more rapid population growth.
- B. The rich country may have more human capital.
- C. The poor country may have a higher savings ratio.
- D. The rich country may be more open to the world economy.

Correct Response: C

Economics

Sub-Topic: Microeconomics

Subjects

- **Economic Analysis** (Questions related to methods and tools used for economic analysis)
- **Employment Analysis** (Questions related to minimum wage and price elasticity)
- **Pricing** (Questions related to increases and decreases in pricing based on demand and the relationship between supply and demand on pricing)
- **Supply and Demand** (Questions related to supply curves, producer surplus, consumer surplus, demand curves, and price elasticity)

Example Questions

A firm charges \$14 for a product. If the mark-up is 40%, then the fully allocated average cost is _____.

- A. \$19.60
- B. \$10.00
- C. \$8.40
- D. \$9.00

Correct Response: B

An increase in price, with all other things being unchanged, leads to _____.

- A. an outward shift in demand
- B. an inward shift in demand
- C. a contraction of demand
- D. an extension of demand

Correct Response: C

Global Dimensions of Business

Subjects:

- **European Union** (Questions related to the economic and monetary union, and common foreign policy)
- **Global Market Analysis** (Questions related to foreign operations, global business perspectives, and foreign operations)
- **Globalization** (Questions related to the drivers of globalization, environmental forces, free trade, and environmental conditions)
- **International Business Structures** (Questions related to foreign forces, transnational corporations, the environments of international business, and exports)
- **International Environment** (Questions related to the external environment, influencing behavior, behavioral reactions, and decision making)
- **International Trade** (Questions related to the impact of political issues)
- **United Nations** (Questions related to global and regional solutions, the Security Council, the five main bodies/organs)
- **World Trade Organization** (Questions related to trade unions)

Example Questions

Globalization is beneficial to firms because _____.

- A. it protects them from foreign competition
- B. it cushions them from the effects of events in other countries
- C. it increases the risk and uncertainty of operating in a globalizing economy
- D. it opens up new market opportunities

Correct Response: D

_____ are situations in which the domestic firm assumes an equity position (partial ownership) in a foreign firm to manufacture and / or market the domestic firm's product offerings.

- A. Direct investments
- B. Joint ventures
- C. Franchise relationships
- D. Strategic alliances

Correct Response: B

Information Management Systems

Subjects:

- **Computer Integrated Manufacturing** (Questions related to agile manufacturing, the automation of manufacturing, and outsourcing/off-shoring)
- **Decision Support Systems** (Questions related to tactical management, information systems, data mining, analytical processing, and strategic information systems)
- **E-Commerce** (Questions related to intranets and extranets, the cross-functional enterprise system, and the integrated suite of software modules)
- **Electronic Communications** (Questions related to supply chain management, enterprise collaboration systems, and demand forecasts)
- **Information Systems** (Questions related to internet technologies, functional business systems, the marketing business function, and manufacturing information systems)
- **Internal and External Networks** (Questions related to internet/intranet websites, and interactive marketing)
- **Knowledge Management Systems** (Questions related to composite and cross-functional capabilities, strategies of an enterprise and the development of computer systems)
- **Knowledge Workers** (Questions related to the use and distribution of information)
- **Software and Hardware** (Questions related to data resource management technologies, the development, access and maintenance of databases)
- **Technology Management** (Questions related to the management of development efforts, and analysis of the effectiveness of new information systems)

Example Questions

Which one of the following is characteristic of a Decision Support System (DSS)?

- Provides guidance in identifying problems, finding and evaluating alternative solutions, and comparing or selecting alternatives.
- Draws on diverse yet predictable data resources to aggregate and summarize data.
- High volume data capture process.
- Has as its goal the efficiency of data movement, processing and interfacing different Transaction Processing Systems (TPS).

Correct Response: A

Information Management Systems

Example Questions

Which one of the following terms is used to describe information coming into a computer that is in bad form, or is incorrect, and will adversely affect the decision-making process?

- A. Garbage In Garbage Out (GIGO)
- B. Tainted data
- C. Dirty information
- D. Scrubbed data

Correct Response: A

Legal Environment of Business

Subjects

- **Administrative Agencies** (Questions related to powers of administrative agencies, various administrative procedures, and regulations)
- **Criminal Law** (Questions related to negligence, intentional wrongdoing, intentional torts, common defense, disenfranchisement, double jeopardy, and evidence)
- **Cyber-crime** (Questions related to commercial service providers, cyber trespass, online activities, and electronic communications)
- **Damages and Punishment** (Questions related to punitive damages, intangible harms, compensatory damages, and emotional distress)
- **Due Process** (Questions related to fundamental rights, rational basis analysis, substantive due process, reasonable notice, and right to a hearing)
- **Legal Analysis** (Questions related to strict scrutiny analysis, and government action)
- **Liability** (Questions related to strict liability, personal liability, assumption of risk, basic principles of causation, and statutory requirements)
- **Privacy Law** (Questions related to invasion of privacy, and consent)
- **Public Law** (Questions related to the power of eminent domain, and seizure)
- **Tort** (Questions related to defamation, intentional tort, abuse of process, and malicious prosecution)

Example Questions

Equality before the law is rendered meaningless if _____.

- A. judges have sentencing discretion to take into account individual case facts
- B. an individual cannot access the legal system because it is prohibitively expensive
- C. everyone cannot afford legal representation of the same standard
- D. the possibility to appeal a case decision ends

Correct Response: B

Legal Environment of Business

Example Questions

Fred finds George's lost dog. George is so pleased he promises to give Fred \$350. George fails to give Fred the \$350 promised. Can Fred enforce the promise?

- A. Yes, because Fred did something in return for the \$350.
- B. Yes, because it is a unilateral contract.
- C. No, because the promise to pay was made after the act in returning the dog and past consideration is not good consideration.
- D. No, because the dog was worth only \$50.

Correct Response: C

Management

Sub-Topic: Human Resource Management

Subjects

- **Employee Development** (Questions related to differentiation strategies and employee development processes)
- **Job Analysis** (Questions related to data gathering for job analysis, employee activities and outcomes, and job application processes)
- **Organizational Structure** (Questions related to (downsizing and restructuring)
- **Personnel Planning** (Questions related to employee recruiting, forecasting, planning processes, and labor shortage or surplus)
- **Strategic Management** (Questions related to steps in strategic personnel planning, personnel decision-making, and types of employment strategies)

Example Questions

The final process of a job analysis is the preparation of two statements, namely, _____.

- A. job observation and job description
- B. job specification and job observation
- C. job description and job specification
- D. job specification and job requirements

Correct Response: C

Why is it important to ensure that Human Resource (HR) plans are flexible?

- A. To accommodate changes to senior management teams.
- B. To accommodate the rapidly changing environments in which most organizations operate.
- C. To adapt to changing skills and qualifications.
- D. To ensure a diverse workforce is maintained at all times.

Correct Response: B

Management

Sub-Topic: Operations/Production Management

Subjects

- **Management Design** (Questions related to flow processes, primary functions, production vs. operational management, process selection, and throughput)
- **Organizational Structure** (Questions related to office design)
- **Product Development** (Questions related to new product development, design for manufacturing, and market pull)
- **Supply Chain Management** (Questions related to infrastructure improvement, supply chain activities, supply chain dynamics, set-up time, and labor and overhead costs)

Example Questions

Which one of the following is not a factor that affects productivity?

- A. Flat organizational structures
- B. Design of the workspace
- C. Standardizing processes
- D. Wireless cellular phones

Correct Response: D

Activities that are undertaken before the final operation are termed _____ activities.

- A. upstream
- B. primary
- C. secondary
- D. downstream

Correct Response: A

Management

Sub-Topic: Organizational Behavior

Subjects

- **Employee Development** (Questions related to task performance, employees and organizational goals, job demand responses, political deviance, work output, and employee obligations)
- **Management Design** (Questions related to discretionary activities and quality of the workplace design)
- **Personnel Planning** (Questions related to workplace stress, employee attitude, employee behaviors, and work-life balance)

Example Questions

The concept of Communities of Practice (CoP) has grown in the past decade and can evolve formally or informally using communication and information technology. What is an appropriate description of a CoP?

- A. A gathering of experts in a particular field who allow their work to be disseminated over the internet.
- B. An individual who is willing to disseminate relevant information to interested parties.
- C. Groups of people who interact regularly on issues important to them and share best practices for their mutual benefit.
- D. A workplace-based group willing to communicate with others using the internet and the intranet.

Correct Response: C

The first step in the recruitment and selection process is _____.

- A. trend analysis
- B. application form
- C. succession planning
- D. employment (personnel) planning

Correct Response: D

Marketing

Subjects

- **E-Commerce** (Questions related to internet-based collaborators, producers, service providers, intermediaries, and manufacturers)
- **Market-Driven Economy** (Questions related to economic systems, marketing activities, and profit)
- **Marketing Analysis** (Questions related to non-profit organizations, measuring profit, types of customers, product market, and market segmentation)
- **The Marketing Function** (Questions related to e-commerce, collaboration, intermediaries, and market-driven economy)

Example Questions

The ultimate objective of a company's website is to add enough value to achieve _____, a state in which the customer has a vested interest to stay with the company because switching to a competitor entails significant costs.

- A. loyalty
- B. a dependency relationship
- C. lock-in
- D. integration

Correct Response: C

What are the four Ps of the marketing mix?

- A. Plan, Price, Publicize, Promote
- B. Price, Place, Product, Promote
- C. Product, Price, Promote, Place
- D. Product, Promote, Place, Pay

Correct Response: C

Quantitative Research Techniques and Statistics

Subjects

- **Descriptive Statistics** (Questions related to mean, numeric characteristics, median, qualitative data, and mode)
- **Displaying Results** (Questions related to graphs, frequency tables, graphical tools, and statistical tools)
- **Population Analysis** (Questions related to units)
- **Sampling** (Questions related to systematic samples, units, and random samples)
- **Scales of Measurement** (Questions related to population unit, levels of measurement, data sets, and frequency distribution)
- **Statistical Analysis** (Questions related to quantitative data and measurement from a population)
- **Statistical Methods** (Questions related to statistical inference, sample of measurements, population of measurements, and improvement activities)
- **Variables** (Questions related to quantitative variables, independent variables, and ratio variables)

Example Questions

An abstract of a research report states that cross-tabulation was performed. This indicates to the reader that the analysis involved _____.

- A. two numerical variables
- B. two categorical variables
- C. one categorical and one numerical variable
- D. one numerical and one ordinal variable

Correct Response: B

Interviewing all the members of a given population is called _____.

- A. a sample
- B. a Gallup poll
- C. a census
- D. a Nielsen audit

Correct Response: C

Assessment Service Validity and Reliability

The programmatic assessment services provided by Peregrine Academic Services, the higher education division of Peregrine Global Services, are used to assess retained knowledge of students at various academic degree levels. Schools deploy these services to evaluate the effectiveness of their academic programs, identify areas for improvement, and demonstrate program outcomes to external stakeholders.

Peregrine places a high priority on ensuring the validity and reliability of the assessment services. These practices begin at the design stage and continue through beta-testing, and with ongoing regularly scheduled quality reviews. The following outlines the approaches used to ensure ongoing validity and reliability.

Validity refers to the extent to which the test banks and the services measure the phenomena under consideration.

Reliability refers to the extent to which the exam results are repeatable and therefore data sets can be compared over time.

Design Features that Impact Validity and Reliability

The following features apply to all assessment services.

- Exam scoring is 100% objective using automated marking.
- Each exam viewed by a student is unique using a random selection of questions from the test bank in random topic order.
- Each exam has timed response periods for questions. When the user navigates away from the exam screen, the screen fades, a message appears informing the user that he/she has left the exam window and the questions are timed.
- Students are unable to copy/paste from the exam window.
- Abandoned exams are excluded from summary reports.

Ensuring Ongoing Validity and Reliability

Validity

To ensure test bank validity, the following measures were adopted when the initial test banks were created. The same principles are used with subsequent changes to the test banks.

- The specific accreditation or certification requirements related to learning outcomes evaluation were used to determine the topics and subjects for the test banks.
- Current teachings for each topic were considered regarding the foundational level of each test bank.

- Exam questions were written and reviewed by academic professionals within each discipline. Similar subject matter experts are used with subsequent editing and for new questions.
- Each topic has questions designated for 4-8 subjects per topic to help ensure appropriate breadth of coverage and allow for specific learning outcomes measurement.
- Exam responses are either correct or incorrect, with only one possible right choice. Scores are determined by summarizing the percent correct: per subject, per topic, and by total score.

Reliability

Peregrine contracted with external experts to design a comprehensive and statistically sound approach to measuring assessment service reliability. A *Reliability Report* is generated for each assessment service for its scheduled periodic review. The report generates data for several reliability metrics and the data for each are compared with acceptability criteria to determine which test questions should be modified or replaced.

Subject matter experts in the field are then contracted to modify/replace the targeted questions. Hence, the assessment service is regularly reviewed and improved to ensure ongoing reliability.

Reliability is determined by measuring *Item Difficulty*, *Item Discrimination*, and *Question Interchangeability*.

Item Difficulty refers to the percentage of students who answer questions correctly. Data are generated by topic and for each question. The target Item Difficulty is 60 percent correct with an acceptable range of 35–80 percent.

Item Discrimination refers to how well a question distinguishes between those students with more knowledge (higher overall exam scores) from those with less knowledge. Two measures are used: *Discrimination Index* and *Point-Biserial Correlation*.

For a given question, the Discrimination Index compares the scores of students with high overall test scores with students with low overall test scores. The scale is -1 to +1, with higher values indicating that a given question better distinguishes between high and low performing students. A value of ≥ 0.20 is considered acceptable. Point-Biserial Correlation is equal to Pearson's Correlation Coefficient between the scores on the entire exam and the scores on a specific question. A score of ≥ 0.10 is considered acceptable. When assessing the quality of questions, both the Discrimination Index and the Point-Biserial Correlation Coefficient are reviewed.

Question Interchangeability refers to the ability to substitute a question in the test bank with another without significantly affecting the total score that an individual would receive on the exam. This is determined using Cohen's Effect Size d calculated based on a two-tailed t -test comparing the total score for all students who had that question in their exam versus the total score of the students who did not have that question in their exam. The scale is 0 - 1.0, and a score of < 0.20 is considered acceptable.