

Basavarajeswari Group of Institutions
BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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Fifth Semester B.E. Degree Examinations, April/May 2024

QUALITY ASSURANCE AND QUALITY ASSURANCE

Duration: 2 hr

Max. Marks: 100

Instructions to the Candidates:

- All questions are compulsory.
- Each question carries 1 mark.
- Use only black ball point pen.
- Darkening more than one circles for the same question makes the answer invalid.
- Damaging/overwriting, using whiteners on the OMR are strictly prohibited.

<u>Q.No</u>	<u>Question</u>
1.	What does QA & QC stand for A. Quality assurance and queuing control B. Quality adjustment and Quality completion C. Quality assurance and Quality control D. Quality adjustment and Quality control
2.	Quality means A. Conformance to specifications B. Conformance to standards C. Conformance to requirements D. All of the above
3.	Quality assurance is a sum of A. Quality design B. Quality conformance and performance C. Quality service D. All of the above
4.	Quality refers to A. Productivity B. Timely delivery C. Competitive cost D. All of the above
5.	Which of the following is the dimension of quality? A. Performance B. Conformance C. Serviceability D. All of the above
6.	Customer focus is the principle of A. Quality control B. Quality Inspection C. Quality Assurance D. none of the above
7.	Quality audit is an example of A. Quality control B. Quality assurance C. Quality inspection D. none of the above
8.	What is the full form of PDCA cycle? A. Plan do check act B. Plan do act check C. Plan act do check D. Planned do check act
9.	PDCA cycle acts as a best tool, so as to achieve A. Quality B. Standards C. Criteria D. None of the above
10.	Equipment breakdowns, scrap and productivity losses is a part of A. Internal failure cost B. External failure cost C. Both a & b D. none of the above
11.	Which of the following is the reasons for poor quality of construction? A. Lack of availability of resources B. lack of skilled labours C. Time management D. All of the above
12.	Quality not only impacts aesthetics, appearance and durability but also affects A. Performance B. Conformance C. Neither A or B D. None of the above
13.	Quality plan must focus on which one of the primary objectives A. Doing things right the first-time B. Preventing things from going wrong C. Continually improving the process D. All of the above
14.	What is the first step of Quality assurance? A. Development of standards B. Identification of customer needs C. Servicing D. material control

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)

- 15.** Which of the following is an example of quality assurance?
A. Verification B. Software testing C. Validation D. Documentation
 - 16.** What are the advantages of quality control
A. Reduction in construction cost B. Less inspection required C. Both A & B D. Only A
 - 17.** Which one of the following involves material and component control
A. Development of standards B. Development of specifications C. Quality control D. Feed back
 - 18.** Which one of these is not a cost of quality control
A. Prevention costs B. Indirect cost C. External cost D. Appraisal cost
 - 19.** Which of the following is not the dimension of quality?
A. Specification B. Reliability C. Features D. Durability
 - 20.** Identify which of the following is not a part of an inspection department
A. Project quality control B. Inspection of equipment's
C. Inspection of materials D. Inspection of subsoil
 - 21.** Which of the following is a principle of TQM?
A. Process centered B. Product-centered
C. External customer focus only D. Internal customer focus only
 - 22.** Which of the following represents India in ISO?
A. PFRDA B. FSSAI C. BIS D. BCCI
 - 23.** ISO 9000 series is a guideline for _____
A. To design business strategy B. For marketing of business
C. To adopt good business practice D. To help generating business idea
 - 24.** ISO 9000 series was originally introduced in the year_____
A. 1978 B.1987 C.1981 D.1998
 - 25.** ISO 9000 having been adopted in over _____ countries.
A. 117 B.152 C.178 D.215
 - 26.** ISO 9000 is a series is a _____
A. quantity management standards B. qualification management standards
C. quality management standards D. None of the above
 - 27.** ISO 9000 series was created by the _____
A. Internal Organization for Standardization B. International Trade Organization
C. International Organization for Standardization D. International Standards for Organization
 - 28.** ISO 9000 determines _____
A. The procedure used for quality control B. Infrequent causes of variation
C. Performance of suppliers regarding quality D. If the company practices its written procedures
 - 29.** Which of the following is not a component of Total Quality Management (TQM)?
A. Continuous improvement B. Customer focus C. Employee empowerment D. Inspection
 - 30.** Which of these ISO 14000 series standards consist of the guidelines of the Environmental Performance Evaluation?
A. ISO 14004 B. ISO 14001 C. ISO 14031 D. ISO 14010
 - 31.** What is the purpose of ISO 9001:2015?
A. To improve customer satisfaction through effective quality management systems
B. To ensure that products meet regulatory requirements
C. To reduce costs through better process management
D. To establish a framework for continuous improvement
 - 32.** Which of the following is not a key element of ISO 9001:2015?
A. Leadership B. Risk-based thinking C. Customer satisfaction D. Supplier management

33. What is the purpose of the "Plan-Do-Check-Act" cycle in ISO 9001:2015?
 - A. To monitor customer satisfaction levels
 - B. To identify and prioritize improvement opportunities
 - C. To conduct supplier audits
 - D. To train employees on quality management principles
34. Which of these is not a principle of TQM?
 - A. Customer orientation
 - B. Time management
 - C. Leadership commitment
 - D. Team Work
35. Which part of ISO 9000 series consist guidelines for quality assurance in production, installation
 - A. ISO 9001
 - B. ISO 9003
 - C. ISO 9002
 - D. ISO 9004
36. Which part of ISO 9000 series consist guidelines for quality management and quality systems?
 - A. ISO 9001
 - B. ISO 9002
 - C. ISO 9003
 - D. ISO 9004
37. Which Indian standard has guidelines similar to ISO 9000 series?
 - A. IS 10000
 - B. IS 12000
 - C. IS 14000
 - D. IS 19000
38. Which is the latest ISO 9000 version in the ISO 9000 family?
 - A. ISO 9000:1987
 - B. ISO 19011:2018
 - C. ISO 9000:2000
 - D. ISO 9000:2015
39. Which of the following is not a determinant of the 'customer' functional element while measuring
 - A. Number of suggestions implemented
 - B. Customer satisfaction index
 - C. Percentage returns by customers
 - D. Service rating
40. Throughput time is equal to _____
 - A. Processing time + Inspection time
 - B. Processing time + Inspection time + Movement time
 - C. Processing time + Inspection time + Movement time + Waiting time
 - D. Processing time + Inspection time + Waiting time
41. What do you mean by SQC?
 - A. Statistical quality control
 - B. System quality control
 - C. Standard quality control
 - D. none of these
42. Which of the following is the elements of SQC?
 - A. Sample inspection
 - B. Decision making
 - C. Specifications, production and inspection
 - D. All of the above
43. Which of the following is the techniques of statistical quality control?
 - A. Process control
 - B. product control
 - C. acceptance sampling
 - D. all of the above
44. Which of the following are an advantage of SQC?
 - A. Reduction in cost
 - B. greater efficiency
 - C. accurate prediction
 - D. all of the above
45. Quality is a _____ variability
 - A. Opposite of
 - B. proportional of
 - C. reciprocal of
 - D. synonym of
46. Which of the following is a common measure of process variability?
 - A. Mean
 - B. range
 - C. median
 - D. mode
47. What is the recommended minimum frequency of testing for concrete samples as per IS 456:2000?
 - A. Once per day
 - B. Once per week
 - C. Once per month
 - D. Once per batch
48. In IS 456:2000, what is the minimum number of samples recommended for each grade of concrete per batch?
 - A. 1
 - B. 2
 - C. 3
 - D. 4
49. What is the recommended method for mixing concrete samples before testing?
 - A. Manual mixing using shovels
 - B. Mechanical mixing using a concrete mixer
 - C. Stirring by hand
 - D. Shaking vigorously

50. According to IS 456:2000, where should the samples be taken from in a stationary mixer?
A. From the top of the mixer
B. From the sides of the mixer
C. From the bottom of the mixer
D. From the discharge point of the mixer
51. In IS 456:2000, what is the recommended curing period for concrete samples?
A. 7 days
B. 14 days
C. 28 days
D. 60 days
52. According to IS 456:2000, what is the standard test method for determining the compressive strength of concrete cubes?
A. ASTM C39
B. BS EN12390
C. IS 516
D. ACI 318
53. According to IS 456:2000, what is the minimum number of concrete cubes required for testing at each designated age?
A. 1
B. 2
C. 3
D. 4
54. What is the permissible deviation in compressive strength of concrete cubes from the average strength, as per IS 456:2000?
A. $\pm 5\%$
B. $\pm 10\%$
C. $\pm 15\%$
D. $\pm 20\%$
55. According to IS 456:2000, what is the minimum characteristic flexural strength of concrete at 28 days?
A. 3 MPa
B. 5 MPa
C. 7 MPa
D. 10 MPa
56. In IS 456:2000, what is the recommended minimum duration of water curing for concrete beams before testing?
A. 7 days
B. 14 days
C. 21 days
D. 28 days
57. According to IS 456:2000, when is the flexural strength of concrete considered satisfactory?
A. When all beams exceed the characteristic strength
B. When the average of three beams is equal to the characteristic strength
C. When at least one beam meets the characteristic strength
D. When the average of three beams exceeds the characteristic strength
58. Which of the following is a non-parametric measure of variability?
A. Range
B. Variance
C. Standard deviation
D. Coefficient of variation
59. Which measure of variability is affected by the choice of units used to measure the data?
A. Range
B. Variance
C. Standard deviation
D. Coefficient of variation
60. What does IS 456:2000 recommend regarding the storage of concrete samples?
A. Samples should be stored in direct contact with the ground
B. Samples should be stored in open areas exposed to weather conditions
C. Samples should be stored in a cool and moist environment
D. Samples should be stored in a dry and warm environment
61. What is the primary cause of honeycombing in concrete construction?
A. Over vibration during concrete placement
B. Insufficient water in the concrete mix
C. Poor concrete consolidation
D. Overwatering of the concrete mix
62. Which type of error in concrete construction is associated with the uneven settling of the concrete mass?
A. Honey combing
B. segregation
C. Plastic shrinkage concrete
D. Differential settlement
63. Which error in concrete construction results from the excess bleeding of water to the surface of the concrete?
A. Honey combing
B. Segregation
C. Bleeding
D. Plastic shrinkage concrete
64. What is the primary cause of alkali-aggregate reaction (AAR) in concrete?
A. Inadequate curing of the concrete
B. Excessive compaction of the concrete
C. Reaction between alkalis in the cement and certain aggregates
D. Overloading of the concrete structure

65. What is the primary cause of crazing in concrete surfaces?
 A. Poor concrete consolidation
 B. Inadequate curing
 C. Rapid drying of the concrete surface
 D. Over vibration during concrete placement
66. What is the primary cause of scaling in concrete surfaces?
 A. Rapid freezing and thawing cycles
 B. Excessive compaction of the concrete
 C. Inadequate water-cement ratio
 D. Overloading of the concrete structure
67. Which type of error in concrete construction is characterized by a non-uniform surface finish and low durability?
 A. Segregation
 B. Honeycombing
 C. Bleeding
 D. Cracking
68. Which error in concrete construction results from improper formwork placement or support?
 A. Honeycombing
 B. Segregation
 C. Formwork failure
 D. Plastic shrinkage cracking
69. What is the primary purpose of frequency-based material testing?
 A. To increase material costs
 B. To reduce construction time
 C. To ensure consistent quality control
 D. To eliminate the need for material testing
70. Which factor influences the frequency of material testing in construction?
 A. The type of equipment used in construction
 B. The geographic location of the construction site
 C. The colour of the construction materials
 D. The size of the construction workforce
71. What is the primary risk of reducing the frequency of material testing in construction?
 A. Increased project efficiency
 B. Higher construction costs
 C. Enhanced material quality
 D. Improved safety standards
72. What type of material commonly undergoes frequent testing in construction projects?
 A. Paints and coatings
 B. Office supplies
 C. Furniture
 D. Structural materials like concrete and steel
73. Which of the following construction materials typically requires reporting of chemical composition and physical properties?
 A. cement
 B. sand
 C. coarse aggregates
 D. bricks
74. What important properties of cement are typically reported?
 A. Colour and texture only
 B. Compressive strength only
 C. Chemical composition, fineness, setting time, and strength
 D. Price and availability only
75. In reporting sand for construction, which characteristics are commonly included?
 A. Particle size distribution and colour
 B. Weight and volume
 C. pH level and chemical composition
 D. Price and location of extraction
76. What key properties of coarse aggregates are important for reporting?
 A. Shape and colour only
 B. Size and density only
 C. Grading, shape, size, and specific gravity
 D. Surface area and porosity only
77. What parameters of steel are usually reported for construction purposes?
 A. Length and weight
 B. Tensile strength and elongation
 C. Colour and texture only
 D. Manufacturer and price only
78. What does IS code 456:2000 specify regarding the acceptance criteria for cement in concrete construction?
 A. Minimum 28-day compressive strength of 25 MPa
 B. Maximum water-cement ratio of 0.4
 C. Maximum initial setting time of 30 minutes
 D. Minimum fineness of 225 m²/kg
79. According to IS code 383:1970, what is the maximum permissible amount of silt in fine aggregates used for concrete?
 A. 3%
 B. 5%
 C. 7%
 D. 10%

80. According to IS code 516:1959, what is the minimum number of cubes required for concrete mix acceptance testing?
A. 1 B.2 C.3 D. 4
81. What is the primary focus of quality management during the conceptual design stage?
A. Detailed engineering calculations B. Cost estimation
C. Functional requirements and overall project feasibility D. Construction scheduling
82. During the conceptual design stage, what is the key consideration for ensuring quality?
A. Optimization of material usage B. Compliance with local building codes
C. Integration of sustainable design principles D. Speed of construction
83. What is the primary purpose of quality assurance during the preliminary design stage?
A. Ensuring constructability B. Finalizing project budget
C. Confirming compliance with regulatory requirements D. Material procurement
84. Which of the following best describes the role of quality control during the preliminary design stage?
A. Finalizing project schedule B. Reviewing design specifications
C. Ensuring safety during construction D. Selecting construction materials
85. What is the primary goal of quality management during the detailed design stage?
A. Achieving aesthetic appeal B. Finalizing construction methods
C. Ensuring structural integrity and functionality D. Minimizing project cost
86. During the detailed design stage, what aspect of quality control is crucial?
A. Procurement of construction equipment B. Reviewing shop drawings and specifications
C. Monitoring construction progress D. Finalizing project financing
87. What is the primary objective of quality assurance during the construction stage?
A. Ensuring adherence to project schedule B. Implementing safety protocols
C. Minimizing construction waste D. Obtaining regulatory approvals
88. Which of the following best describes the role of quality control during the construction stage?
A. Ensuring compliance with contract documents and specifications
B. Managing project stakeholders
C. Establishing project milestones
D. Developing marketing strategies
89. What is the primary purpose of testing during the construction phase?
A. Confirming project completion
B. Ensuring compliance with regulatory standards and project specifications
C. Marketing the completed project
D. Obtaining financial approvals
90. What is the primary goal of commissioning activities?
A. Ensuring project profitability
B. Verifying that systems and components operate according to design intent
C. Securing additional funding for the project
D. Conducting marketing campaigns
91. During the handover stage, what is the primary focus of quality assurance?
A. Ensuring long-term maintenance B. Obtaining project certifications
C. Preparing project documentation D. Confirming client satisfaction
92. What does the rebound hammer test measure in concrete?
A. Compressive strength B. Tensile strength C. Shear strength D. Flexural strength
93. How does the rebound hammer function?
A. By measuring the depth of cracks in concrete B. By measuring the surface hardness of concrete
C. By measuring the porosity of concrete D. By measuring the moisture content of concrete

94. What does a higher rebound number indicate in the rebound hammer test?
 A. Higher compressive strength
 B. Lower compressive strength
 C. Higher porosity
 D. Lower porosity
95. According to guidelines, what is the recommended minimum number of readings per test location in the rebound hammer test?
 A. 1
 B. 2
 C. 3
 D. 4
96. What property of concrete does the UPV test primarily assess?
 A. Elastic modulus
 B. Compressive strength
 C. Tensile strength
 D. Shear strength
97. What does a higher ultrasonic pulse velocity indicate in the UPV test?
 A. Higher compressive strength
 B. Lower compressive strength
 C. Higher porosity
 D. Lower porosity
98. According to standards, what is the minimum acceptable strength for concrete in most construction applications?
 A. 10 MPa
 B. 20 MPa
 C. 30 MPa
 D. 40 MPa
99. What does UPV stands for?
 A. ultrasonic pulse velocity
 B. ultra-pulse velocity
 C. pulse velocity
 D. all of the above
100. When considering UPV test results for acceptance, what should be the relation between the measured velocity and the specified velocity?
 A. The measured velocity should be higher than the specified velocity
 B. The measured velocity should be lower than the specified velocity
 C. The measured velocity should be equal to the specified velocity
 D. The measured velocity can vary regardless of the specified velocity
