

**320751(20)****B. E. (Seventh Semester) Examination, April-May 2020****(Old Scheme)****(Civil Engg. Branch)****QUALITY CONTROL and ASSURANCE  
in CONSTRUCTION***Time Allowed : Three hours**Maximum Marks : 80**Minimum Pass Marks : 28**Note : Attempt all questions. Part 'a' of every question is compulsory. Attempt any two from 'b', 'c' and 'd'.***Unit-I**

1. (a) Discuss the difference between quality control and quality assurance for construction. 2
- (b) Write an essay on factors affecting quality in construction. 7

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- (c) Enumerate various agencies involved in a construction project of a dam and discuss their inter-relations with regards to quality of the project. 7
- (d) Develop an organisation structure chart for a construction firm involved in construction of high rise building and highlight the quality control and quality assurance departments stating the responsibilities of quality assurance manager. 7

**Unit-II**

2. (a) Enlist the ten headings in which the vocabulary of quality management system is classified in ISO-9000. 2
- (b) What are the benefits of ISO-registration? 7
- (c) What is the impact of a large construction project on Environment with reference to ISO-14000? 7
- (d) How an organisation can achieve objectives and targets through Environmental Management Programme? 7

**Unit-III**

3. (a) Enlist the various field tests to be carried out for the material to be used for a construction project. 2

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- (b) Explain the Acceptance criterion for a specific grade of concrete as per IS.456 : 2000. 7
- (c) Discuss various aspects of Inspection of a stone masonry work to be observed by a quality control personnel. 7
- (d) Write a short note on storage and inventory control at a construction site. 7

**Unit-IV**

4. (a) Define and explain the measures of central tendency and dispersion. 2
- (b) Write a short note on seven management tools for statistical quality control. 7
- (c) Following table shows the averages and ranges of the thickness of road crust in millimeters for 30 subgroups of 5 items each.
- For the first 20 samples, set up on  $\bar{X}$  chart and an  $R$  chart. Plot the next 10 samples on these charts to see the process continues “under control” both as average and range 7
- $\{ d_2 = 2.326, D_4 = 2.11 \} D_3 = 0 .$

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$\bar{X}$	$R$	$\bar{X}$	$R$	$\bar{X}$	$R$	$\bar{X}$	$R$
45.020	0.375	45.660	0.425	45.800	0.475	45.380	0.125
44.950	0.450	45.680	0.275	45.500	0.200	45.660	0.350
45.480	0.450	45.600	0.275	45.780	0.275	45.460	0.225
45.320	0.150	45.020	0.175	45.640	0.225	45.640	0.375
45.280	0.200	45.320	0.200	45.260	0.150	45.390	0.650
45.820	0.250	45.560	0.425	45.650	0.200	45.290	0.350
45.580	0.275	45.140	0.250	45.620	0.400		
45.400	0.475	45.620	0.375	45.480	0.225		

- (d) The mean and standard deviation of sample of 100 observations were calculated as 40 and 5.1 respectively. While comparing with the original data, it was found that by mistake, a figure of 40 was miscopied as 50 for one observation. Calculate the correct mean and standard deviation of the sample. 7

**Unit-V**

5. (a) What are the primary functions quality assurance? 2
- (b) What is the purpose of three phase control system? What are the three phase control responsibilities? 7
- (c) What are the economic objectives of quality and how they are achieved? 7
- (d) What is the role of quality Assurance personal and challanges before him/her? 7

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