



**SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY
VIRUDHUNAGAR**



CE6704 ESTIMATION & QUANTITY SURVEYING

UNIT -III

SPECIFICATION AND TENDERS

QUESTIONS & ANSWERS

PART – A

1) Define analysis of rates. (Nov./Dec. 2009,2011,2014)

Determination of rates of works from the qualities and cost of materials and labours required is termed as analysis of rates

2) What are the factors to be considered for analysis of rate for various items of works? (Apr./May2008)

- a) Total cost of materials including carriage.
- b) Total expenditure on various types of labourers, skilled or unskilled.
- c) Task a labour can do in one day, category-wise in existing conditions.
- d) Contractor's profit @ 10%
- e) T and P expenditure.

3) What is meant by schedule of rates? (Nov./Dec. 2007,2008, 2010)

Schedule of rates is a list of rates of various items of works. To facilitate the preparation of estimates, and also to serve as a guide in setting rates in connection with contract agreements, a schedule of rates for all items of work is maintained in the Engineering Department in the form of a printed books known as "**Schedule of Rate Books.**"

4) Define a tender. (April/May/June2007,2011), (Nov./Dec. 2007)

Tender is an offer given in writing to execute specified articles or materials at a certain rate, within a fixed time, under certain conditions of agreement between the contractor and the party, which may be a government department or an individual.

5) Define: 'contract'

Contract is merely an agreement being enforceable by law between two persons or parties.

6) Write the essentials requirements of contract.

- ❖ There must be an offer of one party and its acceptance by the other party to make an agreement.

- ❖ There must be an intention of both the parties to create legal relation.
- ❖ The object of the contract must be legal, and it must not be opposed to any policy of the government or company.
- ❖ The agreement to make a contract should be supported by consideration or recognized by law.

7) What are the types of contract? (Nov./Dec. 2009)

- i) Lump-sum contract
- ii) Cost plus percentage of cost contract
- iii) Item rate contract
- iv) Labour contract
- v) Integrated contracting system

8) What is cost plus percentage contract?(May/June2007)

In this system contractor is given certain percentage over the actual cost of the construction as his profit. Contractor arranges materials and labour at his cost and keeps proper account and he is paid by the department or owner the whole cost together with certain percentage, say 10% as his profit as agreed upon beforehand. An agreement is prepared with all conditions of contract in advance. In this case proper control in the purchase of the materials and in labour shall have to be exercised by the department or owner.

9) What are the important legal implications of a contract?

- ❖ Agreement should not violate the provisions of law.
- ❖ It should not have any adverse effect on the morals of the society
- ❖ The form of contract should be in writing and each page of the documents of the contract should of the contract should be signed by both the parties.
- ❖ A contractor who refuses to carry out the work before completion can be sued in a court of law for breach of contract.

10) What is termination of contract? (Nov./Dec. 2008)

The contract can be terminated by the Executive Engineer or by competent authority in default or bankruptcy of the contractor and penalty may be imposed as per terms of the contract agreement. If the contractor does not fulfill the terms and conditions of contract as-if he leaves the work, if he does not maintain progress, if he does not observe the rules, instruction, etc., the contract agreement may be rescinded and all of his security money be confiscated or penalty up to the extent of 10% of the estimated cost may be imposed on the contractor. For termination of contract due notice shall have to be served on the contractor.

11) What is specification? (Nov./Dec. 2007), (Apr./May2007)

Specification is an important document attached with a tender form contract agreement, which in most cases controls the quality of materials and works.

12) State the different types of specification. (Nov./Dec. 2008,2011)

1. General or brief specification
2. Detailed specification
3. Standard specification

13) Describe general or brief specification

General specification gives the nature and class of work and materials in general to be used in the various parts of the works, from the foundation to the superstructure.

General specifications give idea of the whole work or structure and are useful for preparing the estimate.

14) Describe detailed specification. (Nov./Dec. 2010) (April/May/June2007,2011)

The detailed specifications form a part of the contract document. The detailed specification of an item of the work specifies the qualities and quantities of materials proportion of mortar workmanship, the method of preparation and execution and method measurement.

The detailed specifications of different items of work are prepared separately which description what the work should be and how they should execute and constructed.

15) Distinguish between detailed and general specifications. (Nov./Dec. 2009)

S.No.	Detailed specifications	General specifications
1	The detailed specifications form a part of the contract document. The detailed specification of an item of the work specifies the qualities and quantities of materials proportion of mortar workmanship, the method of preparation and execution and method measurement.	General specification gives the nature and class of work and materials in general to be used in the various parts of the works, from the foundation to the superstructure.
2	The detailed specifications of different items of work are prepared separately which description what the work should be and how they should execute and constructed.	General specifications give idea of the whole work or structure and are useful for preparing the estimate.

16) What are the types of penalties that are imposed on a contract and Why are they imposed? (April/May2011)

Penalties may be imposed for non-fulfillment of conditions of contract such as not maintaining progress, delay in completion and unsatisfactory work etc. The penalty may be fixed sum per day or a percentage of the estimated cost up to 10%

17) What is arbitration?

Arbitration means the settlement of a dispute by the decision of a third person chosen and acceptable as a judge. The decision of the arbitrator is binding on both the parties. In public works department the superintending engineer function as the arbitrator

18) Why and when the earnest money deposits are collected?

While submitting a tender, the bidder has to deposit with the department an amount equal to about 2 ½% of the estimated cost of the work which is called earnest money deposit. This amount serves as a check to prevent the contractor from refusing to accept the work or runaway, when his tender has been accepted. In case of refusal to take up the work his earnest money is forfeited.

19) Why and when the security deposits are collected?

At the time of execution of the contract agreement, the successful tender has to deposit a further sum of 1% of the contract amount to the department. This amount is known as security deposit. This amount is kept as a check so that the contractor fulfils all terms and conditions of the contract. The security deposit will be refunded to the contractor on the satisfactory completion of the whole work, after the observation period of 6 months

20) What is a tender notice (OR) tender form? (May/June2007), (Nov./Dec.2009)

Tender notice is the publicity of offer to the contractor to quote their rates for construction work or supplied. Sealed tenders are invited in the most open and public manner. It is made public by advisement in leading newspaper, in the government gazette or by notice in English and in the regional languages in public places.

21) What information's should a contract document contain?

1. Title page
2. Index page
3. Tender notice and tender forms
4. Schedule of quantities
5. Drawings
6. General specifications
7. Detailed specification

8. Schedule of issue of materials

9. Conditions of contract.

PART – B

1. Write short notes on general specification.

General specification gives the nature and class of work and materials in general terms to be used in the various parts of the work, from the foundation to the superstructure. It is a short description of different parts of the work specifying materials, proportions, qualities etc. General specifications give general idea of the whole work or structure and are useful for preparing the estimate. These general specifications do not form part of the contract document. They are used in the estimates by the person who prepares the estimates.

2. Explain the detailed specification.

The detailed specifications form a part of the contract document. The detailed specification of an item of work specifies the qualities and quantities of materials, the proportion of mortar, workmanship, the method of preparation and execution and the method of measurement. The detailed specifications of different items of work are prepared separately which describe what the work should be and how they should be executed and constructed. Detailed specifications are written to express the requirements clearly in concise form avoiding repetition and ambiguity. The detailed specifications are arranged as far as possible in the same sequence or order as the work is carried out. The following provisions are made in the detailed specifications.

- General provisions
- Technical provisions.

a. General provisions

- i. Conditions relating to documents
- ii. Conditions relating to the general obligations of the contractor
- iii. Conditions relating to labour and personnel
- iv. Conditions relating to the execution of the work
- v. Conditions relating to measurements and payments
- vi. Conditions relating to default and non-completion
- vii. Conditions relating to settlement of dispute

b. Technical Provisions

- i. Specifications for materials and workmanship
- ii. Specifications for performance
- iii. Specifications for proprietary commodities.

3. Explain the standard specifications

Specifications are seldom written completely for all items of the work. It is possible to standardize specifications for most of the items occurring in works of similar nature. Hence every engineering department prepares the detailed specifications of the various items of works and get them printed in book form under the name “Detailed Standard Specifications”. When the work, or a structure or project is taken up, instead of writing detailed specification every time, the printed standard specifications are referred in the contract document and other documents pertaining to the work. Tamilnadu Public Works Department following the “Tamilnadu Building Practice”. The clauses of Indian Standards (Code of Practice). National Building Code (NBC), Hand book by National Building Organisation (NBO) may be also referred while writing specifications.

Essential Requirements of Specifications

Following are some of the essential requirements of good specification writing.

1. *Subject matter*
2. *Grammar*
3. *Selection of works*
4. *Accuracy*
5. *Practical limits and commercial sizes*
6. *Fairness*
7. *Brevity*

Points to be Included in the Specifications

In the case of Civil Engineering Works, the specifications shall contain the following points.

1. Quality of materials to be used with strength/size requirements,
2. Quantity of materials to be used and the methods of measurements to be followed.
3. Method of mixing when different materials are used.
4. Construction methods to be followed mentioning the equipment and machinery to be used.
5. Dimensions of works such as breadth, thickness etc.,
6. Methods of measurements of works for payments.

4. Explain the points to be included in the specifications of some of the civil engineering construction work.

1. *Specification for lime mortar concrete, surkimortar concrete and cement mortar concrete*

Specifications for lime, cement, fine aggregate and coarse aggregate – quality and quantity of water – specification for lime mortar and surkimortar – volume batching or weigh batching and proportion of ingredients – method of mixing – hand mix ding or machine mixing – platform for mixing – transporting

concrete – placing – ramming and compaction – curing – method of measurement and payment.

2. Specification for Cement Concrete for R.C.C. Work

Specifications for cement, fine aggregate and coarse aggregate – proportion of ingredients – quality of water – consistency – volume batching or weigh batching – mixing – hand mixing or machine mixing – mixing time – transporting and placing of concrete – thickness of each layer – compaction – use of vibrator – construction joints – specification of reinforcement – fabrication of reinforcement – centering and form work – curing removal of form work – finishing – method of measurement and payment.

3. Specification for Brick masonry in lime mortar, surki mortar or cement mortar

Quality and size of bricks – proportion and specification of mortar – soaking of bricks in water – setting of bricks in mortar – thickness of joints – bond – raking joints for plaster – uniform raising – maximum height for a day's work – scaffolding – throating corbelling and cornices – rounding off corners – plinth offsets – brick on edge coping – curing unit of measurement and payment.

4. Specification for Stone masonry in lime mortar, surki mortar or cement mortar

Requirements of building stone – size and dressing of stones – hammer dressing chisel dressing – bond stones – methods of laying stones – wetting of stones before placing – specification of mortar – thickness of mortar bed and thickness of joints of filling the voids – uniform raising – scaffolding – curing – methods of measurements and payment.

5. Specification for Plastering stone masonry or brick masonry with lime mortar, surki mortar or cement mortar

Preparation of surface – cleaning the surface – wetting and washing the surface – specification of mortar – mix ratio – thickness of plaster – number of coats – application of mortar on the surface – finishing – curing measurement and payment.

6. Specification for pointing stone masonry, brick masonry with lime mortar, surkimortar, cement mortar

Raking out of joint – brushing and cleaning – washing with water – specification for mortar – application of mortar in the joints – finishing thickness of joints – curing measurements and payment.

5. Explain the general specifications of some works involved in the construction of a residential building.

- 1. Foundation Concrete:** Cement concrete 1:4:8 using 40 mm size blue granite broken stone.
- 2. Foundation and Basement:** Brickwork in cement mortar 1:5 using 7.5 grade bricks.
- 3. Super Structure:** Brickwork in cement mortar 1:6 using 7.5 grade bricks.
- 4. Flooring:** Mosaic flooring over a base of 100 mm thick cement concrete 1:5:10 using 40 mm size brick bats.

5. **Roofing:** 120 mm thick R.C.C. roof in 1:2:4 concrete using 20 mm size blur granite broken stone.
6. **Finishing:** Plastering the walls and ceilings with cement mortar 1:3, 12 mm thick and finishing the same with three coats of white washing.
7. **Doors and Windows:** Country wood doors and windows painted two coats with ready mixed paint over a primer coat.

6. Explain the general specifications of few items of works involved in the laying of a village road

1. **Sub grade:** Leveling and compacting the surface with a camber of 1:48 for 8 metre width, uniform along the full length, with watering.
2. **Soling:** Soling with 150 mm size granite boulders, packed completely with gravel and compacted with hand roller, dry and wet rolling.
3. **Spreading gravel:** Red gravel spread over the base for 20 mm thickness, watered and rolled.
4. **Finish:** Covered with a thin layer of sand.

7. Explain the general (or) Brief specifications of few works involved in laying a bitumen road

- i. **Preparation of Base:** Clearing the surface with wire brushes and removing the dust completely patching all pot holes.
- ii. **Application of Bitumen binder:** Applying heated bitumen uniformly at the rate of 0.9 kg/m².
- iii. **Spreading of Chips:** Spreading 12 mm size stone chips uniformly, 20 mm thick.
- iv. **Rolling:** Rolling 6 to 8 trips with 8 ton power roller.