



**Tertiary and Vocational Education Commission**  
**Knowledge Assessment – April 2022**  
**Construction Site Supervisor**  
**National Vocational Qualification Level 04**



**Time: 03 Hours**

**Instructions for the Candidates**

- Answer all questions
- In each of the questions from 1 to 50, pick the one of the alternatives (a), (b), (c), (d) which you consider is correct or most appropriate.
- Mark a cross (x) on the number corresponding to your choice in the answer sheet provided.
- This question paper consists of 07 pages.

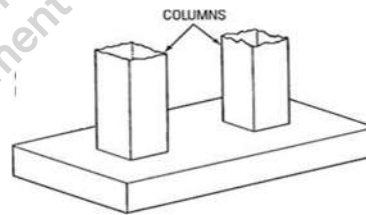
**Part 1**

1. What is the suitable definition for Substructure of the building?

- a) D.P.C level to wall plate level
- b) D.P.C level to first floor slab level
- c) Below the D.P.C level
- d) D.P.C to sill level of window

2. What is the name of this foundation type?

- a) Strip
- b) Raft
- c) Combined footing
- d) Isolated footing



3. What is the most appropriate definition for foundation?

- a) It bears the load of the structure and transmit to the sub soil
- b) It equally distributes the load on underlying soil
- c) It provides a levelled hard surface to build the superstructure
- d) It distributes the load of the structure, on large area

4. The stone suitable for rubble masonry should be;

- a) Light weight
- b) Tough
- c) Heavy
- d) Hard

5. If the firm soil is at a considerable depth, which type of pile foundation is suitable?

- a) End Bearing Piles
- b) Friction Piles
- c) Displacement Piles
- d) Replacement Piles

6. Size of the mould used for cube test for concrete is;
    - a) 150mm X150mm X 150mm
    - b) 100mm X 100 mm X 100mm
    - c) 300 mm X 300mm X 300mm
    - d) 150mm X 100mm X 150mm
  7. What should be avoided in a Brick masonry wall?
    - a) Vertical joints
    - b) Horizontal joints
    - c) Queen closer
    - d) Brick bats
  8. What is the correct statement about Pure Lime?
    - a) It gains the strength within a short time
    - b) It takes a short time to get hardened
    - c) It takes a long time to develop the strength
    - d) It is used as a raw material to manufacture bricks
  9. Name the given brick bond;
    - a) Stretcher Bond
    - b) Flemish Bond
    - c) English Bond
    - d) Header Bond
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10. What is the most suitable road roller to compact asphalt concrete layers?
    - a) Tandem 8- 10 Ton roller
    - b) Sheep foot roller
    - c) Vibrating Roller
    - d) Pneumatic Tyred Roller
  11. What are the techniques used in brick wall construction?
    - a) Toothing – Stepping
    - b) Toothing – cutting
    - c) Stretcher bond - Header bond
    - d) Stepping – cutting
  12. The most appropriate answer to the preliminary work by a supervisor is;
    - a) Removing top soil and cart away
    - b) Obtaining Permits for Construction
    - c) Provision of basic facilities at site and land preparation
    - d) Construction of a safety fence around the site
  13. Rigid pavements are most suitable for;
    - a) Expressways and A category roads
    - b) Roads along sea shore
    - c) New roads in dry zone
    - d) Narrow roads in wet zone

14. For roads, cleaning road surface and side drains, weeding, brushing are;
  - a) Periodical maintenance
  - b) Annual maintenance
  - c) Urgent maintenance
  - d) Routine maintenance
15. Two main types of plastics are,
  - a) Rough and Smooth
  - b) Colour and Non- Colour
  - c) Thermoset plastic and Thermoplastic
  - d) Glossy and Matt Finished
16. Which category consists with the binding materials?
  - a) Clay, Lime, Cement, Bitumen
  - b) Plaster, Paint, Glass, Timber
  - c) Ceramic, Metal, Plastic, Insulating Bricks,
  - d) Concrete, bricks, Steel, Timber
17. What is the construction that is built to withstand the earth pressure?
  - a) Partition wall
  - b) Gabion wall
  - c) Cavity walls
  - d) Panel walls
18. Septic tank is a;
  - a) Sealed compartment to collect rain water
  - b) Sealed compartment to collect waste water
  - c) Unsealed compartment to divert waste water flow
  - d) Unsealed compartment to collect rain water
19. What is the mass of a 10mm diameter Tor Steel bar in kg/m
  - a) 0.616
  - b) 0.222
  - c) 0.888
  - d) 1.579
20. An average height of the plinth is measured as;
  - a) 50mm-100 mm
  - b) 300mm-500 mm
  - c) 1000mm – 2000mm
  - d) 300mm-450 mm
21. The Damp Proof course in a building prevents;
  - a) Termite attacks in a building
  - b) Moisture entering in to the building
  - c) Water Entering to the building
  - d) Corrosion of r/f in concrete

22. What is the roof that does not categorized as a main roof?

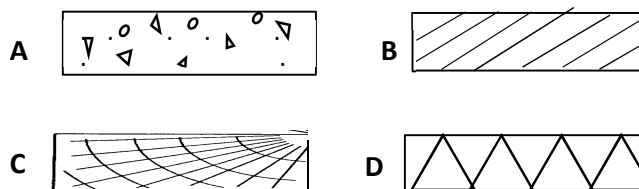
- a) Pitched roof
- b) Flat roof
- c) Shell roof
- d) Gable roof

23. Valance boards are constructed for the purpose of;

- a) Preventing slipping the roofing sheets
- b) Supporting barge boards
- c) Preventing splashing the rain water on external walls
- d) Supporting the rain water gutters

24. Identify the timber in the figures;

- a) A
- b) B
- c) C
- d) D



25. What are the work items when levelling the site?

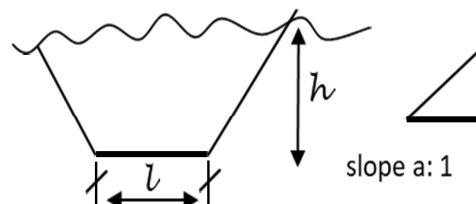
- a) Clearing, grubbing & removing, trenching,
- b) Soil Stripping & bulking
- c) Cut & fill, cut & remove & fill
- d) Open sump, Well point, deep well

26. You need to verify the dimensions and r/f details of a column/ slab joint at the site. What is the appropriate drawing you will draw?

- a) Sketch drawing
- b) Location drawing
- c) Concept drawing
- d) Working drawing


27. The cross-section area for the excavation of the canal is;

- a)  $lh + ah^2$
- b)  $\frac{1}{2} (lh + ah^2)$
- c)  $lh + \frac{1}{2} ah^2$
- d)  $(l+h)2a$



28. Calculate the number of 300 x 300 mm floor tiles necessary for tiling a room with internal dimensions of 4500 x 3000 mm;

- a) 100 Nos
- b) 200 Nos
- c) 150 Nos
- d) 75 Nos

29. What is the most appropriate use of a Mechanical Scraper?
- Excavating a trench
  - Loading a lorry
  - Reduce levels over a large area
  - Spreading spoil across site
30. In surveying what are the main types of Measurement?
- Horizontal and Angular
  - Linear and Angular
  - Vertical and Angular
  - Horizontal and Linear
31. What are the tools required for Levelling?
- Level instrument, tape, staff, & Bench mark
  - Level instrument, tripod, Bench mark & umbrella
  - Level instrument, Tripod, Staff & marker
  - Level instrument, tape, umbrella and staff
32. Select the most appropriate answer; Additives are added to paints;
- To maintain the uniformity of paint coating
  - To maintain good bond between paint and primer
  - To mitigate brush marks
  - To mitigate cracks and pinholes on paint surface
33. Identify the figure in drainage systems;
- S Trap
  - P Trap
  - Bottle Trap
  - Pipe Joint
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34. Identify the correct statement below concerning hand tools:
- Hand tools should be secured in the technician's tool belt
  - Pliers and pipe wrenches shall be used on nuts and bolts
  - Never strike hardened steel surfaces with a steel hammer
  - Use a sharp knife to strip traveling cable
35. What is the most common cause of accidents in construction sites?
- Negligence
  - Lack of skills
  - Busy schedules
  - Improper handling of tools
36. If there is an electrical fire, which type of extinguisher should be used?
- Water
  - Dry powder
  - Carbon dioxide
  - Foam

37. What is an assembly point at a site?
- A place of accommodation for workers
  - A place where people need to gather after evacuation
  - A place to do religious activities at the site
  - A resting area and a place to spend leisure time
38. The gullies are constructed to;
- Collect sewage
  - Collect chemical disposal
  - Collect rain water
  - Distribute hot water
39. Which document can be used to identify the delay of the project?
- Payment records
  - Construction programme
  - Cash flow reports
  - Available materials at site
40. What is the best explanation about the Weekly Progress Report?
- it uses for week end meetings
  - It summarizes all the details of Daily reports
  - it uses to summarize the minutes of the weekly meeting
  - it shows only the labour attendants
41. Find the chemical hazard agent;
- Fuel spillage
  - Falls
  - Electricity
  - Inhalation
42. If the scaffolding used regularly in construction work, how often it must be inspected by a competent person?
- Quarterly
  - Monthly
  - Weekly
  - Daily
43. Select the high-risk machinery that need test certification;
- Drilling Machine
  - Bar bending Machine
  - Tower Crane
  - Cutting Machine
44. What is the First Aid that can be done at a site?
- Removing an object clogged in the nose
  - Wound dressing
  - Oiling for severe Burns
  - Eye drops for eye injuries

45. General welfare facilities that provided at construction sites are;
- a) Training programs and meals
  - b) Living Accommodations and sanitary facilities
  - c) Sport activities and leisure activities
  - d) Trade union activities
46. How many days of rest time a worker is entitled per week?
- a) 1.5 days
  - b) 2 days
  - c) 1 day
  - d) 2.5 days
47. Which of these is most likely to cause an accident in a workplace?
- a) Administration
  - b) Manual handling
  - c) Inadequate lighting
  - d) Excessive noise
48. How do you calculate the overtime hours per week under the Wage Board Ordinance?
- a) After 30 hours
  - b) After 36 hours
  - c) After 42 hours
  - d) After 48 hours
49. What can be an organizational barrier in communication?
- a) Over dependency on modern technology
  - b) Forming social events
  - c) Maintaining workforce performances
  - d) Interfering in resolving labour disputes
50. Daily reports are maintained ;
- a) To satisfy the organizations procedures & processes
  - b) To record tasks performed
  - c) To check the material usage
  - d) To assess individual performance

(01 x 50 = 50 Marks)



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**Instructions for the Candidates**

- Answer four (04) Questions including First (1) Question (First (01) question is compulsory and total number of questions should be answered is four (04)).
  - Answer the questions in the spaces provided in the same question paper
  - This question paper consists of 08 pages.
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**Part 2**

1.

i). Name two (02) types of shallow foundation? (01 Mark)

ii). Give the mix proportions of concrete in Grade 20 and Grade 25 respectively. (01 Mark)

iii). What are the main factors that have to be considered in selecting a foundation type? (01 Mark)

iv). In a Bar schedule you have found **20R 10 – 05 -150B**. Write the meaning of this notation? (01 Mark)



v). Name two (02) types of timber that falls under the super luxury class as per classification of Sri Lanka Timber Corporation? (01 Mark)

vi). What are the main methods of mixing concrete? (01 Mark)

vii). Name one (01) advantage and one (01) limitation for each of Manual excavation and machinery excavation. (01 Mark)

viii). Give two (02) examples for decorative materials that are for suitable walls? (01 Mark)

ix). What are the main functions of formwork in concreting work? (01 Mark)

- x). Distinguish the words “Surveying” and “levelling” that are important work in construction.

(01 Mark)

- xi). What is the main reason for shrinking of cement concrete immediately after mixing?

(01 Mark)

- xii). What is the main purpose of sieve analysis?

(01 Mark)

- xiii). What are the main activities under periodical maintenance of flexible pavements?

(01 Mark)

- xiv). Why the Road camber is so important?

(01 Mark)

2.

- i). Explain the batching, mixing and transportation of concrete.

(05 Marks)

- ii). A mortar is mixed using Ordinary Portland Cement around 8 am and it was partially used. Around 2pm, the balance was again added with water and was ready to use. Do you approve it? Give explanations to your answer.

(04 Marks)

- iii). How do you differentiate the size of sand particles permitted to use for brick mortar and for internal wall plastering? Explain the reasons for them.

(03 Marks)

3. Scaffoldings are very often used in construction work and many methods are presently practiced.
- i). What is scaffolding? Give examples of materials used for scaffolding and describe their respective advantages and disadvantages.
- (06 Marks)

- ii). What are the parameters that are considered when scaffoldings are erected?
- (03 Marks)

- ii) Give three (03) examples for defects that can be observed in painted metal surface.
- (03 Marks)

- 4.
- i). What are the main construction problems you may face when an old building is maintained? How do you overcome them?
- (05 Marks)

- ii). Staircases are used to connect and provide way of moving between two levels of a structure. Explain the requirements that staircases should have to move comfortably.

(07 Marks)



- 5.
- i). Elbows and bends are widely used in any plumbing system. Explain the difference of them and advantages and disadvantages of them.

(05 Marks)

- ii). If there is a person showing COVID 19 symptoms and he is living at the accommodation provided by your company, what are the actions that you will take?

(04 Marks)

- iii). What is the purpose of Papilla petti kiker box in column construction?

(03 Marks)

6. Three storied male hostel building is being constructed and the sanitary facilities are provided at two gable ends of the floor of the building. There are two (02) water closet (WC) lavatories, two (02) urinals, two (02) wash basins and two (02) bathtubs in each side of each floor.

- i). Select one side and list out the units, parts, fittings and any other accessories of the system;

(04 Marks)

- ii). Draw a sketch of a waste water and sewage disposal system to convey the all waste to a Manhole located on the ground floor. Name parts.

(06 Marks)

- iii). Name two (02) types of valves used in a water supply network.

(02 Marks)

7. Write short notes on three (03) of the following;

(04 x 3 = 12 Marks)

- ii) Roof ceiling
- iii) Trail pits
- iv) Seasoning of timber
- v) Defects on pavement /roads