

03. Explain the differences between "rigid" and "flexible" highway pavements.
04. State four (4) precautions, which should be taken when transporting ready mixed concrete from mixing plant (*or* the point of delivery), up to the point of placement.
05. Write down four (4) practical applications of reciprocating pumps.
06. Draw a typical cross-section of a road running along a fill section indicating different layers. Also show clearly the shoulders, carriageway and platform widths in your diagram.

07. In electrical installation, correct identification of the live and the neutral wires is very important and it is achieved by colouring installations cores in accordance with IEE regulations. Indicate the colour code of different wires.
08. The primary purpose of a toe filter is to prevent embankment material escaping from the dam with seepage water. Sketch and name different zones of a toe filter.
09. Briefly explain the following two types of welding joints with the help of neat sketches.
(a) Butt-welded joint. (b). Fillet welded joint.
10. Traps play an important part in internal plumbing. Briefly explain four different types of traps used in internal plumbing with the help of neat sketches indicating the 'seal depth' in each case.

Section B

Answer any four (4) questions. All questions carry equal marks.

(01)

- (a) Explain the function of the priming coat in painting on different types of surfaces? (05 marks)
- (b) Describe the recommended procedure for painting steelwork. (05 marks)
- (c) Provide a clearly labeled section of a diffuser centrifugal pump explaining its mode of operation. (05 marks)
- (d) Discuss the advantages and disadvantages of reciprocating pumps. (05 marks)

(02) "Strength" and "durability" of hardened concrete are important factors that have to be ensured during the construction stage.

- (a) Briefly discuss the factors, which influence the strength of concrete. (05 marks)
- (b) Discuss the function of water in a concrete mix, explaining its effects on the strength and durability of concrete. (05 marks)
- (c) In construction of a multi-storey building, if ready mix concrete is to be used, state what details should be considered and planned by the contractor to ensure concreting is done correctly. (05 marks)
- (d) List the various methods available for curing of concrete floor slabs. (05 marks)

(03)

- (a) There are two generally used systems of supplying water to buildings namely (i) the direct system, and (ii) the indirect system. Explain these two different systems and discuss their usage. Draw neat sketches where necessary. (08 marks)
- (b) List & neatly sketch the main components of a water closet & flushing cistern. (06 marks)
- (c) Describe with neat sketches the 3 different ways the 'flushing appliance' (or flushing cistern) may be connected to the water closet pan in the domestic usage. (06 marks)

(04)

- (a) Explain the differences between 'friction piles', and 'end bearing piles'. (6 marks)
- (b) Explain the differences between 'replacement piles', and 'displacement piles'. (4 marks)
- (c) Explain the precautions that have to be taken when driving pre-cast concrete piles. (7 marks)
- (d) List the different methods of testing piles. (3 marks)

(05)

- (a) Define the term 'moisture content of timber' and explain why it is important in the design and construction of timber structures. (5 marks)
- (b) Briefly describe how 'air seasoning' of timber is carried out. (5 marks)
- (c) Briefly explain why timber used for construction industry has to be treated with a preservative and how it can be done. (5 marks)
- (d) Explain the difference of practical usage of 'tar-oil preservatives' and 'water soluble preservatives'. (5 marks)

(06)

- (a) There are three types of electric wiring installation used in domestic buildings. Briefly explain what these are. (5 marks)
- (b) Lamps used for lighting of domestic buildings can be either (i) filament type, or (ii) fluorescent type. Briefly explain the two types. (5 marks)
- (c) List the five types of lamps commonly available. Briefly describe each of them. (5 marks)
- (d) Write down the complete list of equipment necessary to carry out an Oxy-Acetylene welding process. (5 marks)