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Paper Code :- U117-103 (BE-FS&E)

MARCH / APRIL 2018 – Backlog Exam**F. Y. B. TECH. (COMMON) (SEMESTER - I)****COURSE NAME: Basic Civil Engineering; COURSE CODE: CV11173
(2017 PATTERN)**

Time: [2 Hours]

[Max. Marks: 50]

Instructions to candidates:

- 1) Answer Q.1 OR Q.2, Q.3 OR Q.4 and Q.5
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Neat sketches/ diagrams must be drawn wherever necessary.

- Q.1 (a)** Compare roadways and railways with reference to: (i) Accident rate, (ii) Initial and maintenance cost, (iii) cost of transport, (iv) Employment potential, (v) load carrying capacity, and (vi) customer convenience. [6 marks]
- (b)** Clearly explain: (i) Harbour, its types and details of any one type, and (ii) Six factors considered for selection of site for a proposed Bridge. [6 marks]
- (c)** State the significance of infrastructure engineering. [4 marks]

OR

- Q.2 (a)** Discuss the following:

- (i) Alignment of a bridge, and (ii) Essential components of Intelligent Transportation System. [6 marks]
- (b)** Briefly explain 6 factors for selecting a suitable site for an airport. [6 marks]
- (c)** State 4 points considered for selecting a site for a harbor. [4 marks]

- Q.3 (a)** Draw schematic of a typical water supply system. Briefly explain its three components (Works or Units) in the system. [6 marks]
- (b)** State 4 ill-effects of noise pollution on human beings. Also state 4 ways of controlling noise pollution. [4 marks]
- (c)** Enlist 4 advantages and 4 drawbacks of earthen dams [4 marks]

OR

- Q.4 (a)** With a neat sketch, briefly explain a typical sewage treatment plant. [6 marks]
- (b)** Explain **with sketch** roof top rain water harvesting system. [4 marks]
- (c)** Write a note on 'Primary and Secondary Air Pollutants'. [4 marks]

Q.5 Attempt following multiple choice questions.

- a) Which are most relevant major areas for a proposed dam? [2]
(i) Surveying & Planning, Transportation Engineering
(ii) Environmental Engineering, Construction Management
(iii) Water Resources Engineering, Geotechnical Engineering
(iv) Fluid Mechanics, Transportation Engineering
- b) are important applications of Structural Engineering. [2]
(i) Design of curves and camber
(ii) Design of foundations and treatment plant
(iii) Design of members for given loads and earthquake safety
(iv) Design of retaining walls and culverts
- c) 'Hydraulics and Hydrology' as a basic area of Civil [2]
Engineering is NOT required for
(i) Design of pile foundations and construction of turbines
(ii) Rainfall analysis and design of canal gates
(iii) Design of pavements and design of pneumatic systems
(iv) Design of a water treatment plant and hydropower plant
- d) Materials are used for construction of a masonry (wall). [2]
(i) Concrete blocks and mortar (ii) Bricks and stones
(iii) Neither i nor ii (iv) Both i and ii
- e) Meaning of **1:4:8 concrete** is [2]
(i) 1 part cement: 4 parts coarse aggregate: 8 parts water
(ii) 1 part cement: 4 parts sand: 8 parts coarse aggregate
(iii) 1 part cement: 4 parts fly ash: 8 parts coarse aggregate
(iv) 1 part cement: 4 parts fly ash: 8 parts sand
- f) Out of the following, which is not a 'smart material'? [2]
(i) Piezoelectric (ii) Shape memory alloys
(iii) Photochromatic (iv) Alum
- g) is not a correct (valid) type of offset in Surveying. [2]
(i) Reduced offset (ii) Swing offset
(iii) Oblique offset (iv) Perpendicular offset
- h) Identify the CORRECT statement with respect to 'contours'. [2]
(i) Contours are accurate bench marks for mapping
(ii) Contours are lines joining stations of equal R.L.s
(iii) Contours are useful for performing a levelling work
(iv) Contours are very accurate horizontal distances
- i) Building planning principle privacy deals with [2]
(i) Positions of rooms with respect to specific directions
(ii) Movement of persons on different floors
(iii) Providing undisturbed working conditions for a room
(iv) Provision of sufficient fans, light and ventilation
- j) Which of the following is a component of smart city? [2]
(i) Efficient transportation system (ii) Sustainable environment
(iii) Both i and ii (iv) Neither i nor ii

