

Total No. of Questions : 8]

SEAT No. :

**P541**

[Total No. of Pages : 2

[6004]-463

**B.E. (Civil)**

**AIRPORT AND BRIDGE ENGINEERING**

**(2019 Pattern) (Semester - VII) (Elective - IV) (401004 (D))**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figures to the right side indicate full marks.
- 3) Draw neat diagrams wherever necessary.
- 4) Assume suitable data if necessary.
- 5) Use of electronic pocket calculators is allowed.

- Q1) a)** What is airport drainage? What are the functions and basic requirements of airport drainage? [6]
- b)** Write note on. [6]
- i) Augmented reality
  - ii) Virtual Reality
- c)** Explain CBR method of flexible pavement design. [6]

OR

- Q2) a)** What is BIM (Building Information Modeling)? Explain in detail. [6]
- b)** Define Airport Capacity. State the various factors affecting airport operating capacity. [6]
- c)** Name the various methods used for designing flexible airport pavement and discuss in brief any one method. [6]

- Q3) a)** Describe the following terms :- [6]
- i) Apron marking
  - ii) Landing Direction Indicator
  - iii) Threshold marking
- b)** Discuss in brief the ICAO system of approach lighting . [6]
- c)** What is heliport? State the various helicopter characteristics. [6]

OR

*P.T.O.*

- Q4)** a) Explain marking of heliport with neat sketch. [6]  
b) What is VTOL and STOL? What are the advantages of STOL? [6]  
c) Why lighting and marking of airport is required? Enlist parameters considered for heliport planning. [6]

- Q5)** a) What are the various methods commonly used in estimation of the flood discharge at a bridge site. [6]  
b) What do you mean by economical span? Derive the equation for economical span, stating clearly the assumptions made in the derivation. [5]  
c) Calculate flood discharge from a catchment of 65 square kilometer when the rainfall during a storm was 15 cm in two hours. The time of concentration is 20 hours and the run off coefficient is 0.35 [6]

OR

- Q6)** a) Define following terms related to bridge. [6]  
i) Effective span  
ii) Freeboard  
iii) Afflux  
b) Sketch any two types of abutments and piers used in the construction of bridges. [5]  
c) Describe in brief IRC class A and Class B Loading used for the design of bridges. [6]

- Q7)** a) Describe with neat sketch. [6]  
i) Bascule bridge  
ii) Suspension bridge  
b) Differentiate between temporary and permanent bridges with example. [5]  
c) Define culvert. Describe box culvert with neat sketch. [6]

OR

- Q8)** a) State the purpose of providing bearing in bridges. Enlist different types of bearing. [5]  
b) Discuss any three types of movable bridges. [6]  
c) Write short note on rigid frame bridges and cable stayed bridges. [6]

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