P541

[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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