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SEAT No. :

PD4560

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B.E. (Civil)

AIRPORT AND BRIDGE ENGINEERING

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

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, and Q7 or Q8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicates full marks.***
4) ***Use of electronic pocket calculator is allowed.***

Q1) a) What is airport drainage? What are the functions and basic requirements of airport drainage? **[6]**

b) Write note on (i) Augmented reality (ii) Virtual Reality. **[6]**

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 :- (i) Apron marking (ii) Landing Direction Indicator (iii) Threshold marking **[6]**

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 runoff coefficient is 0.35. **[6]**

OR

Q6) a) Define following terms related to bridge (i) Effective span (ii) Freeboard (iii) Afflux. **[6]**

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 (i) Bascule bridge (ii) Suspension bridge. **[6]**

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]**