

PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 What are the two types of section carrying out the construction sectors?
- 2 State any two points in percentage completion report.
- 3 Who will be the administrative head of a circle of an engineering department in Tamil Nadu?
- 4 What is the dummy activity?
- 5 Define resource Management.
- 6 Define the term arbitration.
- 7 Expand the terms IRR and IDBI.
- 8 State any two advantages of data base approach to contractor's account.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Name any three agencies involved in the construction activities.
- 10 State any two methods used in the process of economic analysis of a project.
- 11 Expand P.W.D and C.P.W.D.
- 12 Define the term slack & float.
- 13 How quality control can be achieved?
- 14 Write any three applications of MIS.
- 15 Name any three types of bank.
- 16 Expand (i) EST (i) EFT (iii) LST

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All divisions carry equal marks.**

- 17 A i) What are the objectives of planning? 5
ii) List out the types of contract. 5
(OR)
B What are the rights and duties of a sub-contractor? 10
- 18 A i) What is the requirement of Project Office? 5
ii) What is the important of Measurement Book? 5
(OR)
B What are the advantages of partnership business? 10
- 19 A i) What are the classifications of scheduling? 5
ii) What are the advantages of PERT? 5
(OR)
B The precedence relationships and durations of various activities of a project are as follows. Draw the CPM network. Calculate the project duration. Find the critical path. 10

Activity	A	B	C	D	E	F	G
Pre activity	None	A	A	A	B	C & E	D & F
Duration (Days)	3	6	16	10	8	5	3

- 20 A i) What are the elements of quality in construction? 5
ii) What are the categories of disputes? 5
(OR)
B Define accident. What are the causes of accident? 10
- 21 A i) What is the role of an Entrepreneurship? 5
ii) A project requires an initial investment of Rs.1,00,000/- The annual cash flow is estimated at Rs. 25,000 for six years. Calculate internal rate of return. 5
(OR)
B Enumerate the uses of computers in construction industries. 10

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM

(Autonomous)

Reg. No.

April 2019 Examinations

DIPLOMA IN CIVIL ENGINEERING

Hydraulics

Year/Sem: III / VI (EVEN-III)

Max. Marks : 75

Time : 3 hr.

PART-A

(5 x 2 = 10 Marks)

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.**(ii) All questions carry equal marks.**

- 1 Define the term fluid.
- 2 Differentiate cohesion from adhesion.
- 3 Distinguish between steady and unsteady flow.
- 4 List any two limitations of Bernoulli's theorem.
- 5 What is the use of a notch?
- 6 Define nappe.
- 7 List the types of open channels.
- 8 What is the principal source of ground water?

PART-B

(5 x 3 = 15 Marks)

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.**(ii) All questions carry equal marks.**

- 9 What are the types of mechanical pressure gauges?
- 10 What is an orifice? Write any four of it.
- 11 Sketch any three types of weir with its parts.
- 12 Define spillway in a dam and write its purpose.
- 13 How canals are classified based on alignment?
- 14 Define Aquifer and aquicludes.
- 15 What is meant by centrifugal pumps and list any two types.
- 16 List any four advantages of canal lining.

PART-C

(5 x 10 = 50 Marks)

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.**(ii) All divisions carry equal marks.**

- 17 A The pressure of water at a point in a pipe line is 5 kPa. What is the corresponding pressure head in terms of water? What is the corresponding pressure head in terms of kerosene of specific gravity 0.8? 10
- (OR)
- B A triangular plate of base 3m and altitude 4m is immersed in a liquid of specific gravity 0.8. Its base is parallel to and at a depth of 1m from the free liquid surface. Its plane makes 30° to the free surface. Its base is nearer to the free liquid surface. Compute (1) Total pressure on one side of the plate and (2) Depth of centre of pressure. 10
- 18 A A jet issuing from an orifice of 30 mm diameter under a head of 2 m falls 1m vertically in a horizontal distance of 2.75 m from the vena contract. The actual discharge is 100 liters in 37 seconds. Find (1) coefficient of discharge (2) co-efficient of velocity and (3) coefficient of contraction. 10
- (OR)
- B A pipe line connects two reservoirs whose difference in water level is 15 m. The length of the pipe is 600 m. If the discharge is 300 lps, find the diameter of the pipe line, taking f as 0.02. 10
- 19 A A trapezoidal notch, 600 mm wide at the bottom has side slopes 1:1. If the discharge over the notch is 300 lps, determine the head causing flow over the sill of the notch. Take C_d as 0.62. 10
- (OR)
- B A weir, 10 m long is divided into 4 bays by vertical posts, each 300 mm wide. Determine the discharge if the head of water over the weir is 1 m. Take C_d as 0.60. 10

Contd.....2

- 20 A (i) Calculate the hydraulic mean depth for a rectangular channel having a bottom width of 2 m and depth of flow 1.75 m. 5
(ii) Design an economical rectangular channel to carry $90 \text{ m}^3/\text{s}$ with a bed fall of 1 in 1500. In the Chezy's formula, $C=50$. 5
- (OR)**
- B An economical trapezoidal channel has a bed width of 4 m and side slopes of 1:1. It has a bed fall of 1 in 1600. Taking C as 60, determine the discharge. 10
- 21 A (i) Describe the tests to find yield from a well. 5
(ii) Give a brief note on "Open wells" and its types. 5
- (OR)**
- B A centrifugal pump, installed in a well for irrigation, pumps 2400 litres of water per minute to a height of 25 m through 120 m long and 150 mm diameter pipe. The overall efficiency of the pump is 60%. Taking friction factor as 0.04, calculate the power required to drive the pump. 10
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PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 Classify the piles based on material used.
- 2 State cause of fire.
- 3 Define effect of fire.
- 4 Define pretensioning.
- 5 What are the advantages of pre-stressed concrete?
- 6 Write the names of pre fabricated elements in a load bearing wall type construction.
- 7 What are the fire protection measures to be taken in public buildings?
- 8 Define seismic coefficient.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Explain seismograph.
- 10 Define shrinkage crack.
- 11 What are the factors which influence the cracks?
- 12 What are the materials used for repairs in building?
- 13 Define energy efficiency.
- 14 List the various components in modernization.
- 15 Write shortly about land scaping.
- 16 What are lifts?

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All divisions carry equal marks.**

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|----|---|--|--------|
| 17 | A | Describe the process of casting a precast concrete pile and draw a neat sketch of a typical concrete pile. | 10 |
| | | (OR) | |
| | B | What are the uses of different type of admixtures? | 10 |
| 18 | A | i) What are the methods available for post tensioning and explain any one of them?
ii) Briefly explain modular co ordination system. | 5
5 |
| | | (OR) | |
| | B | i) State the advantages and disadvantages of prefabrication system.
ii) What are the requirements of an ideal structural joint? | 5
5 |
| 19 | A | i) Write short note on Fire-resistance of concrete.
ii) What are the general guide lines for planning an earth quake resistant building? | 5
5 |
| | | (OR) | |
| | B | i) What are the precautions to be taken during Earth quake?
ii) What are the effects of seismic forces on buildings? | 5
5 |
| 20 | A | i) Explain the methods of repairing cracks.
ii) What are the major causes for defects in buildings? | 5
5 |
| | | (OR) | |
| | B | i) Define structural cracking in concrete and what are the factors to be considered during demolition.
ii) Explain the transverse cracks in R.C.C slab. | 5
5 |
| 21 | A | i) Explain briefly about Housing modernization and management.
ii) What are the features of a lift car? | 5
5 |
| | | (OR) | |
| | B | i) Write short notes on zero-energy house?
ii) Explain where lifts are provided. | 5
5 |