Hall Ticket Number:

Code No. : **16105 N**

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
B.E. (Civil Engg. : CBCS) VI-Semester Main Examinations, May-2019

Hydrology and Water Resources Engineering

Time: **3** hours   Max. Marks: **70**

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Q.No.	Stem of the question	M	L	CO	PO
	Part-A (10 × 2 = 20 Marks)				
1.	Define unit hydrograph.	2	1	1	1
2.	Write two factors affecting run off.	2	1	1	1
3.	Define storage coefficient and write its value for confined and unconfined aquifer.	2	1	2	1
4.	Define the terms transmissibility and porosity.	2	1	2	1
5.	What is dead storage and surcharge storage?	2	1	3	1
6.	Define trap efficiency.	2	1	3	1
7.	Distinguish between low dam and high dam.	2	1	4	1
8.	With a neat sketch explain uplift pressure.	2	1	4	2
9.	What is the role of surge tank in a hydro power plant?	2	1	5	1
10.	Distinguish between primary power and secondary power.	2	1	5	1
	Part-B (5 × 10 = 50 Marks)				
11. a)	Explain in detail with a sketch weighting bucket type of rain gauge	5	2	1	1
b)	A precipitation station X was inoperative for some time during which a storm occurred. The storm totals at 6 stations A,B,C,D,E and F surrounding X were respectively 7, 4.2, 3.9, 5.4, 3.6, 5.2 & 4.7 cm. The normal annual precipitin amounts at stations X, A, B,C,D E and F are respectively 62, 65, 32, 45, 37, 40 and 25cm. Estimate the storm prectitation for station X.	5	3	1	2
12. a)	Explain the procedure adopted for finding yield by recuperation test method.	5	3	2	1
b)	An artesian tube well has a diameter of 30cm. The thickness of the aquifer is 35m and its permeability is 40m / day. Determine its yield under a drawdown of 4m at the well face. Radius of influence may be taken as 260m.	5	3	2	2
13. a)	Explain the procedure of finding the life of a reservoir.	5	3	3	1
b)	With a neat sketch indicate the zones of storage of a reservoir and explain them.	5	2	3	1
14.	Check the stability of 60m high concrete dam trapezoidal in cross section has upstream face vertical, crest width 3m, base width 50m and free board 2m. Consider hydrostatic pressure, self weight and full Uplift pressure. Take specific weight of concrete as 23t / m³ and coefficient of friction as 0.75.	10	4	4	2
15. a)	Explain the functions of surge tank.	5	2	5	1
b)	Three turbo generators each of 15000KW have been installed at a hydel power station. During a certain period the load on the hydel plant varies from 10000 to 30000 KW. Calculate i) Load factor ii) Utilization factor iii) Plant factor and iv) Maximum demand	5	3	5	2

16.	a)	With a neat sketch explain the zones of sub-surface water.	5	2	1	2
	b)	Distinguish between specific yield and specific retention.	5	1	2	1
17.		Answer any *two* of the following:				
	a)	What do you understand by reservoir sedimentation? Explain.	5	1	3	2
	b)	Write a note criteria for the selection of site of a dam.	5	1	4	1
	c)	What is flow duration curve and also write the significance of it in hydro power plant.	5	1	5	1

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	63
2	Knowledge on application and analysis (Level-3 & 4)	37
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	--

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