QPC: RN19BTECH687 AR 19 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Seventh Semester – Regular) Examinations, November – 2022

BPCAG7040 – GROUND WATER, WELLS AND PUMPS

(AGE)

Time: 3 hrs Maximum: 70 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

Q.1. Answer ***ALL*** questions		[CO#]	[PO#]
a.	The electric power which is obtained from hydraulic energy_____	CO1	PO2
	(i)) Thermal power (ii) Mechanical power		
	(iii) Solar power (iv) Hydroelectric power		
b.	_____ is an inward radial flow reaction turbine.	CO1	PO1
	(i) Pelton turbine (ii) Kaplan turbine		
	(iii) Francis turbine (iv) Propeller turbine		
c.	_____ is a axial flow reaction turbines, if vanes are fixed to hub of turbine.	CO1	PO2
	(i)) Propeller turbine (ii) Francis turbine		
	(iii) Kaplan turbine (iv) Pelton turbine		
d.	Impulse turbine is generally fitted at _____	CO2	PO3
	(i) At the level of tail race (ii) Above the tail race		
	(iii) Below the tail race (iv) About 2.5mts above tail race to avoid cavitations.		
e.	The fluid coming into the centrifugal pump is accelerated by _____	CO2	PO1
	(i) Throttle (ii) Impeller		
	(iii) Nozzle (iv) Governor		
f.	Which kind of turbines changes the pressure of the water entered through it?	CO2	PO1
	(i) Reaction turbines (ii) Impulse turbines		
	(iii) Reactive turbines (iv) Kinetic turbines		
g.	Which energy generated in a turbine is used to run electric power generator linked to the turbine shaft?	CO3	PO3
	(i) Mechanical Energy (ii) Potential Energy		
	(iii) Elastic Energy (iv) Kinetic Energy		
h.	In a centrifugal pump, liquid enters the pump through	CO3	PO2
	(i) The centre (ii) The top		
	(iii) The bottom (iv) none		
i.	Which pumps are called self-primed pumps?	CO4	PO2
	(i) Positive displacement pump (ii) Centrifugal pump		
	(iii) Both (1) and (2) (iv)All of the above		
j.	The efficiency of a positive displacement pump	CO4	PO2
	(i) Decreases with an increase in viscosity (ii) Increases with increase in viscosity		
	(iii) Does not vary with the change in viscosity (iv) none		

PART – B: (Short Answer Questions) **(2 x 10 = 20 Marks)**

Q.2. Answer ***ALL*** questions	[CO#]	[PO#]
a. List the applications of groundwater?	CO1	PO1
b. What is a water table?	CO1	PO3
c. What are the Properties of Aquifers?	CO1	PO2
d. What is Seepage Velocity?	CO2	PO2
e. What is the difference between model and prototype?	CO2	PO1
f. Classify different types of turbines according to flow?	CO3	PO4
g. Explain the purpose of centrifugal pump?	CO3	PO1
h. Discuss about Cavitation?	CO3	PO2
i. How to Estimate hydropower potential?	CO4	PO1
j. What are the different Hydropower plants?	CO4	PO2

PART – C: (Long Answer Questions) **(10 x 4 = 40 Marks)**

		Marks	[CO#]	[PO#]
3. a.	Define aquifer? Explain the types of Aquifers?	5	CO1	PO3
b.	What are the classification of open well?	5	CO1	PO1
	(OR)			
c.	What is meant by Rotary Drilling? Explain it?	5	CO1	PO2
d.	Explain about Cavity Wells?	5	CO1	PO3
4. a.	What are the Basic Assumptions for Analysing Groundwater Flow to Wells?	5	CO2	PO1
b.	Explain about Fully Penetrating Wells?	5	CO2	PO2
	(OR)			
c.	What are the Advantages and Disadvantages of Tube Wells?	5	CO2	PO3
d.	What is Percussion Drilling? Explain it?	5	CO2	PO2
5. a.	Differentiate between uniform and non-uniform flow; laminar and Turbulent flow.	5	CO3	PO1
b.	What is meant by pump? What are various classifications of pump?	5	CO3	PO2
	(OR)			
c.	Explain the principle behind a centrifugal pump and also explain its working with a neat sketch?	5	CO3	PO2
d.	What is priming of a centrifugal pump? Why is it necessary?	5	CO3	PO4
6. a.	What is draft tube? What are the functions of draft tube? Explain different types with figures and draft tube theory?	5	CO4	PO5
b.	What is reciprocating pump? Describe the principle and working of a reciprocating pump with a neat sketch?	5	CO4	PO1
	(OR)			
c.	What is the difference between single stage and multistage pumps?	5	CO4	PO2
d.	Differentiate between micro hydro power and storage hydro power plants?	5	CO4	PO2

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