QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

MID-SEMESTER EXAMINATION OF SECOND SEMESTER - SECOND YEAR (4th SEMESTER) 2022, 20 BATCH, B.E (EE)

SUBJECT: APPLIED THERMODYNAMICS

Dated: 22.11.2022 Maximum Marks: 20 Time Allowed: 01 Hour

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

		CLO	Taxonomy Levels	PLO	Marks
Q. No 1	Provide the short answers of the following (i) Thermodynamics System and its types (ii) Significance of thermodynamics in the environmental processes (iii) Specific Heat (iv) Enthalpy (v) Isothermal Process	CLO1	01	01	10
Q. No 2 (a)	Enlist the applications of first law thermodynamics applied to non-flow processes. Show that first law of thermodynamics is the law of conservation.	CLO1	02	01	07
(b)	A stationary mass of the gas is compressed without friction from an initial state of 0.3 m^3 and 0.105 MPa to a final state of 0.15 m^3 and 0.105 MPa. The pressure remains constant during the process. There is transfer of 37.6 KJ of heat from the gas during the process. How much does the internal energy of the gas change.	CLO1	03	01	03
Q. No 3 (a)	Define the adiabatic process. Show that PV^{γ} =Constant.	CLO1	1, 2	01	06
(b)	Outline the applications of thermodynamics in various fields.	CLO1	2	01	04

"Good Luck"

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

MID-SEMESTER EXAMINATION OF SECOND SEMESTER – SECOND YEAR (4TH SEMESTER) 2022, 20 BATCH, B.E (EE)

SUBJECT: COMMUNICATION SKILLS & REPORT WRITING

Dated: 25.11.2022 Maximum Marks: 20 Time Allowed: 01 Hour.

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.		Question	CLO	Taxonomy Level	Marks
Q. 01		How hearing is a natural process? Explain with examples.	2	2	10
Q. 02		Most of the successful people are the ones who do more listening than talking. Explain this statement thoroughly.	2	2	10
Q. 03		Define the types of speaking skills.	2	2	10

The End

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

MID-SEMESTER EXAMINATION OF SECOND SEMESTER – SECOND YEAR (4TH SEMESTER) 2022-20 BATCH B.E (EE)

SUBJECT: ENVIRONMENTAL HYDROLOGY

Dated: 21.11.2022 Maximum Marks: 10 Time Allowed: 45 Minutes

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

<table>
<tr><th>Q. No.</th><th>Question</th><th>CLOs</th><th>Taxonomy Level</th><th>PLOs</th><th>Marks</th></tr>
<tr><td>Q. 01</td><td>With the help of neat and clean sketch of Hydrologic Cycle, drive water balance equation from it. For a given month, a 121 ha lake has 0.43 m³/s of inflow, 0.37 m³/s of outflow, and total storage increase of 1.97 ha-m. A USGS gage next to the lake recorded a total of 3.3 cm precipitation for the lake for the month. Assuming that infiltration loss is insignificant for the lake, determine the evaporation loss, in cm, over the lake for the month.</td><td>1</td><td>C3</td><td></td><td>05</td></tr>
<tr><td>Q. 02</td><td>With the help of sketch, discuss all types of Precipitation. A reservoir has the following inflow and out flows (in cubic meters) for the first three months of the year. If the storage at the beginning of January is 65 m³, determine the storage at the end of March.
<table>
<tr><th>Month</th><th>January</th><th>February</th><th>March</th></tr>
<tr><td>Inflow (m³)</td><td>3.5</td><td>5.7</td><td>8.3</td></tr>
<tr><td>Outflow (m³)</td><td>6.4</td><td>7.1</td><td>5.5</td></tr>
</table></td><td>2</td><td>C4</td><td></td><td>05</td></tr>
<tr><td>Q. 03</td><td>How to determine missing rainfall values of any gage station? Enlist any one method. Determine the monthly precipitation at gage X by using normal-ratio method.
<table>
<tr><th>Gage</th><th>Annual Precipitation (mm)</th><th>Monthly Precipitation (mm)</th></tr>
<tr><td>A</td><td>410</td><td>24</td></tr>
<tr><td>B</td><td>370</td><td>23</td></tr>
<tr><td>C</td><td>460</td><td>31</td></tr>
<tr><td>X</td><td>400</td><td>X</td></tr>
</table></td><td>2</td><td>C4</td><td></td><td>05</td></tr>
</table>

TheEnd

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

FINAL SEMESTER REGULAR EXAMINATION OF SECOND SEMESTER - SECOND YEAR 2023 OF 20 BATCH (B.E (EE))

SUBJECT: DIFFERENTIAL EQUATIONS & FOURIER SERIES

Dated: 16.01.2023 Maximum Marks: 60 Time Allowed: 3 Hours.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No		CLO	Taxonomy Level	PLOs	Marks
01(a)	Find orthogonal trajectories of the given family of curves $y = \frac{1}{x + c_1}$.	1	C3	2	06
01(b)	The population of a town was 3000 a year ago and the present population is 6000, what will be the population after 4 years?	1	C3	2	06
02(a)	Find the second solution if $y_1(x) = x^1$ is a known solution of $x^2y'' - 3xy' + 4y = 0$ on $(0,\infty)$	2	C3	3	06
02(b)	Find the solution of $\ddot{y} + 5\dot{y} - 6y = 0$.	2	C3	3	06
03(a)	Find the particular solution of $y'' + y = \sec x \tan x$.	2	C3	3	06
03(b)	Solve the Cauchy Euler equation differential equation $x^2\ddot{y} - 2x\dot{y} + 2y = 0$.	2	C3	3	06
04	Solve the heat flow equation $\frac{\partial u}{\partial t} = \frac{\partial^2 u}{\partial x^2}$ by method of separable variables.	2	C3	3	12
05(a)	Show that $f_1(x) = x$ and $f_2(x) = \cos 2x$ are orthogonal on the interval $[-\pi/2, \pi/2]$.	3	C3	2	06
05(b)	Find the Fourier series of the function on the given interval $f(x) = \begin{cases} 0 & -\pi < x < 0 \\ 1 & 0 \le x < \pi \end{cases}$	3	C3	2	06

...The End...

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

FINAL SEMESTER REGULAR EXAMINATION OF SECOND SEMESTER - SECOND YEAR 2021 OF 20 BATCH B.E (EE)

SUBJECT: GIS AND REMOTE SENSING

Dated: 19.01.2023 Maximum Marks: 60 Time Allowed: 03 Hour.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	QUESTION	CLOs	Taxonomy Level (Cognitive)	PLOs	Marks
Q. 01	(a). What is global positioning system? How are maps used in GPS and GIS?	3	3	3	6
	(b). What is network analysis? Define types of network that can be modeled in GIS. Explain the network analysis work flow.	3	2	1	6
Q. 02	(a). What is remote sensing? Suggest some specific uses of remotely sensed images.	3	3	1	6
	(b) What is image resolution? Define types of image resolution.	3	2	1	6
Q. 03	Explain how electromagnetic radiations are important for understanding the remote sensing? Assume the speed of light to be $3x10^8$ m/s. If the frequency of an electromagnetic wave is 500,000 GHz (GHz = gigahertz = 10^9 m/s), what is the wavelength of that radiation? Express your answer in micrometers (μm).	3	2	2	12
Q. 04	(a). Explain the types of sensors with their applications.	3	3	3	6
	(b). What is projection? Why it is important? Define deferent projections with sketch.	3	2	3	6
Q. 05	(a). What is image interpretation? Explain the elements of image interpretation.	3	3	2	8
	(b). Write short notes on the fallowing. I. Image rectification II. Mercator Projection	3	2	2	4

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

FINAL SEMESTER REGULAR EXAMINATION OF SECOND SEMESTER - SECOND YEAR 2021 OF 20-BATCH B.E(EE)

SUBJECT: APPLIED THERMODYNAMICS

Dated: 12.01.2023 Maximum Marks: 60 Time Allowed: 3 Hours.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No	Questions	CLO	Taxonomy level	PLO	Marks
Q. 01 (a)	Draw the P-T (Pressure-Temperature) diagram for a pure substance and describe triple point, critical point and sublimation.	01	02	01	06
(b)	Define entropy, why entropy change between two specified states is the same whether the process is reversible or irreversible.	01	02	01	03
(c)	Differentiate between wet steam, dry steam and superheated steam.	01	01	01	03
Q. 02 (a)	Distinguish between the followings (a) Available and Unavailable energy (b) Gas Turbine and Steam turbine (c) Reversible and Irreversible processes	02	02	02	07
(b)	Derive the expression for irreversibility in a process executed by a steady flow system in a given environment.	02	02	02	05
Q. 03 (a)	Define the technical terms i.e. (i) inlet and discharge pressure, (ii) compression ratio, (iii) swept volume, (iv) free air delivery and (v) mean effective pressure	03	01	02	05
(b)	Elaborate the function of air compressor? Give the classification of air compressors and distinguish between reciprocating air compressors and rotary air compressors.	03	02	02	07
Q. 04	What is heat engine? Outline the various characteristics of heat engines. Derive the expression for thermal efficiency of heat engine. A reversible engine operates between 1000°C and 80°C, what is the efficiency of engine? If the temperature is increased to 1200°C by keeping the lower temperature as the constant, determine the effect on efficiency of the cycle.	03	03	02	12
Q. 05 (a)	Sketch the neat and clean P-V and T-s diagrams of air standard Otto cycle.	02	03	01	04
(b)	Enlist the engineering applications of first law of thermodynamics applied to steady flow processes. Applying steady flow energy equation (S.F.E.E), write the equations for water turbine, boiler, reciprocating compressor and centrifugal pump. A gas expands through an ideally, insulated nozzle following a reversible polytropic law $PV^{1.2} = C$. There is no change in potential energy but the pressure drops from 20 bar to 2 bar and specific volume increases from 0.05 m^3 to 0.3 m^3. If the entrance velocity is 80 m/s, determine the exit velocity.	02	04	01	08

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

FINAL SEMESTER REGULAR EXAMINATION OF SECOND SEMESTER – SECOND YEAR 2021 OF 20 BATCH B.E (EE)

SUBJECT: COMMUNICATION SKILLS AND REPORT WRITING

Dated: 23.01.2023 Maximum Marks: 60 Time Allowed: 3 Hours.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.		QUESTION	CLOs	Taxonomy Level	PLOs	Marks
Q. 01		Differentiate between channels of communication and discuss their importance for communication in organization along with suitable examples.	2	C2	6	12
Q. 02		Enlist the parts of a Report along with suitable examples.	1	C1	10	12
Q. 03		Highlight the importance of Report Writing in the field of engineering.	2	C2	6	12
Q. 04		Enlist Psychological Barriers of Communication and suggest ways to overcome those barriers.	1	C1	10	12
Q. 05		Differentiate between Extensive and Intensive Reading along with suitable examples.	2	C2	6	12

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

FINAL SEMESTER REGULAR EXAMINATION OF SECOND SEMESTER - SECOND YEAR 2021 OF 20 BATCH B.E (EE)

SUBJECT: ENVIRONMENTAL HYDROLOGY

Dated: 09.01.2023 Maximum Marks: 30 Time Allowed: 02 Hours.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	QUESTION	Marks
Q. 01	What is Evapotranspiration? Why Evapotranspiration is important? Discuss various types of Evapotranspiration. What are the factors affecting evapotranspiration process?	10
Q. 02	What is interception? Discuss various factors on which interception is dependent. Calculate interception loss for a tropical forest area with (a = 0.11 and b = 15% of Precipitation P). The intensity of precipitation is low but uniform over the area. Total depth of rain storm is 4 cm.	10
Q. 03	What is infiltration? Enlist all beneficial effects of infiltration. Discuss various factors affecting infiltration process.	10

The End