

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Project & Financial management in Energy Sector
Program: M.Tech. – Energy System + Renewable Energy Engg
Course Code: EPEC8010

Semester: III
Time: 03 hrs.
Max. Marks: 100

Instructions: All questions to be answered

SECTION A

#	Question	Marks	CO
Q 1	List down the various management involve for a successful project.	4	CO1
Q 2	Briefly describe the various models of project.	4	CO1
Q 3	Highlight the salient features of project risk management	4	CO3
Q 4	Describe the feature of an ESCO contract	4	CO4
Q 5	For installing a recuperator in a furnace, the plant has assessed the following time estimates: Optimistic Time : 2.5 weeks Most Likely Time : 3 weeks Pessimistic Time : 3.5 weeks Find out the “Expected Time” and “Standard Deviation” to complete the activity.	4	CO2

SECTION B

Q 6	Compare NPV & IRR.	10	CO3
Q 7	Discuss the mechanism of ESCO working and advantages of ESCO model.	10	CO4
Q 8	Explain briefly three types of Performance Contracting.	10	CO4
Q 9	An ESCO company is required to invest in a waste heat recovery project, which is expected to yield an annual saving of Rs.10,00,000 and the life of the equipment is 7 years. If the ESCO expects 30% IRR on this project, calculate the investment required to be made. <p style="text-align: center;">OR</p> A company has to choose between two projects whose cash flows are as indicated below; Project 1: i. Investment – Rs. 15 Lakhs ii. Annual cost savings – Rs. 4 lakhs. iii. Bi-annual maintenance cost – Rs. 50,000/- iv. Reconditioning and overhaul during 5th year: 6 lakhs v. Life of the project – 8 years vi. Salvage value – Rs. 5 lakhs	10	CO3

	<p>Project 2: vii. Investment – Rs. 14 Lakhs viii. Annual cost savings – Rs. 3.5 lakhs. ix. Annual Maintenance cost – Rs. 20,000/- x. Reconditioning and overhaul during 4th year: 5 lakhs xi. Life of the project – 8 years xii. Salvage Value- 2 lakhs</p> <p>Which project should the company choose? The annual discount rate is 12%.</p>		
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SECTION-C

Q 10	Highlight the advantage & disadvantages of WBS & GANTT chart.	20	CO1
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Q 11	<p>A process plant is planning to implement a waste heat recovery project. The various activities from procurement to commissioning are given in the table below along with their duration and dependency.</p> <table border="1" data-bbox="483 848 998 1266" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Activity</th> <th>Predecessor</th> <th>Time in Weeks</th> </tr> </thead> <tbody> <tr><td>A</td><td></td><td>3</td></tr> <tr><td>B</td><td></td><td>5</td></tr> <tr><td>C</td><td>A</td><td>4</td></tr> <tr><td>D</td><td>A</td><td>6</td></tr> <tr><td>E</td><td>C</td><td>5</td></tr> <tr><td>F</td><td>C</td><td>3</td></tr> <tr><td>G</td><td>B & D</td><td>2</td></tr> <tr><td>H</td><td>D & E</td><td>1</td></tr> <tr><td>I</td><td>F,G,H</td><td>2</td></tr> </tbody> </table> <p>a) Construct a PERT / CPM network diagram for the above project. (5 Marks) b) Compute the earliest start, earliest finish, latest start, latest finish and slack for all the activities (5 Marks) c) Compute the project duration. (5 Mark) d) Identify the critical activities and the critical path(s). (5 Mark)</p> <p style="text-align: center;">OR</p> <p>Elaborate the project networking techniques CPM and PERT</p>	Activity	Predecessor	Time in Weeks	A		3	B		5	C	A	4	D	A	6	E	C	5	F	C	3	G	B & D	2	H	D & E	1	I	F,G,H	2	20	CO2
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