UNIVERSITY
OF
JOHANNESBURG

PROGRAM	:	BACHELOR OF TECHNOLOGY *ENGINEERING: CIVIL*
SUBJECT	:	**CONTRACT MANAGEMENT 3A CIV**
CODE	:	**CMGCI3A**
DATE	:	WINTER EXAMINATION 06 JUNE 2019
DURATION	:	(SESSION 2) 11:30 - 15:30
WEIGHT	:	40: 60
TOTAL MARKS	:	100

ASSESSOR	:	H ZONDI
MODERATOR	:	NN DLAMINI
NUMBER OF PAGES	:	6 PAGES

INSTRUCTIONS	:	ONLY ONE POCKET CALCULATOR PER CANDIDATE MAY BE USED.
REQUIREMENTS	:	NONE

INSTRUCTIONS TO STUDENTS

PLEASE ANSWER ALL QUESTIONS.

QUESTION 1

1.1   Design reports usually focus on and/or include number of items. Name 3 of those items   (3)

1.2   The instructions to tenderers vary from one project to another; give six typical examples of instructions usually given to tenderers.   (6)

1.3   Describe the purpose of a Tender Document Check List   (4)

                                                                                                                    [**13**]

QUESTION 2

2.1   Explain what the agenda of the "Kick-off" meeting typically includes.   (4)

2.2   Describe other arrangements to be made at the commencement of the work.   (4)

2.3   Why is work being given out to other parties (subcontractors)? Give 4 reasons   (4)

2.4   Measurement procedure number of general arrangements and actions: Name four (4)

2.5   The final step of the whole construction process is the writing of a closeout or completion report. What are the four aspects need to be addressed?   (4)

2.6   Disputes that are taken to court (litigation) become very costly for all parties involved. Describe the process of litigation.   (2)

                                                                                                                    [**22**]

QUESTION 3

You are required to determine the operating and owning cost per hour of an Earthworks Machine. It needs to be done over the lifetime of the machine, by applying the information provided below.

A plant Hire Company needs to buy a Grader

- This machine will be used on various contracts.

- These operations will be 5 days per week and 9.5 hours per day for the machine (No weekend work)

- These operations continue throughout the year with no time breaks.

- Do not allow for any annual leave in the calculations.

- The machine will be utilized as follows:
  - Working time of the machine as per the working schedule of the operator.
- General information on the Grader is listed below, in table format.
- The repayment period of the Grader will be 60 months.
- The applicable interest rate will be 14 % pa. (See tables provided to determine the repayment)
- Insurance will be 7.5 % of the "Purchase Price" per year.
- The anticipated economical lifetime of the machine is estimated at 13000 h (Hours).
- The residual value of the machine after 5 (five) years will be 0% (No residual value).
- The fuel price is R 13.46 per litre.
- The operator: (Applies only to the operator and not the machine)
  - Rate per hour (Normal time) R 66.00 per hour. Rate per hour (Over time) R 80.00 per hour
  - Max. normal hours per week 45 (Basic Conditions of Employment Act)
  - Maximum allowable overtime (OT) per week is 10 hours per week. (B C E Act)
  - No time will be deducted for a lunch break of the Operator
  - The lunch break will be regarded as "working hours" included in the daily hours.
- Ignore any VAT aspect in this calculation.

Note: All prices reflected in the table below is R / 1000

	Description	Price	Occurrence	Notes
1	Grader H140 CAT	R 2400	Only once	Price when machine was purchased
2	Tyres	R 21 each	Every 4000 hours	This machine has 6 six tyres
3	Preventative Maintenance	R 6 per event	Every 750 hours	
4	GET	R 8 per event	Every 2500 hours	
5	Fuel consumption (Item 12)	See above	27.5 litres/ hour	As stated above Fuel price
6	Unscheduled maintenance	N/A	N/A	15 % of machine value over lifetime
7	Major Components Replace Final Drive	R 95 per event	Every 10 000 hours	
8	Major Components Replace Engine	N/A	N/A	21 % of machine value over lifetime

[**25**]

QUESTION 4

You need to calculate the Contract Price Adjustment Factor for the Payment Certificate of this upcoming certificate: In this instance end February 2019, Johannesburg project. You have the following information available in the Table 4.1 below:

Table 4.1: Accumulative figures of progress in previous months.

DATE	LABOR	PLANT	MATERIAL	FUEL	SUB CONT.	PROFIT	TOTAL
	Accumulative Values						
2018-05-31	300	900	400	400	200	200	2400
2018-06-30	1100	1700	600	500	200	400	4500
2018-07-31	1400	1800	1400	800	400	600	6400
2018-08-31	1700	2300	2300	1000	500	800	8600
2018-09-30	2300	2400	3300	1000	600	1000	10600
2018-10-31	3500	2700	4100	1300	700	1200	13500
2018-11-30	3900	3400	4800	1500	700	1400	15700
2018-12-31	5200	3400	4900	1700	800	1600	17600
2019-01-31	6400	3400	5700	1800	1000	1800	20100
2019-02-28	7800	4200	6300	2000	1300	2000	23600
TOTAL VALUES (Estimated)	45000	32000	40000	15000	10000	16000	158000

Additional information available:

- The Sub Contractor only supplies plant, with no labour.
- The Base Index for this calculation is the month preceding (before) the first payment.(On the above table)
- The portion of the contract not applicable to the price adjustment is 15%.
- The values for the coefficient (a, b, c, and d) to represent the proportionate values of Labour, Plant, Material and Fuel must be used as follows a= 0.25, b= 0.4, c= 0.2, and d= 0.15
- The payment is for the month of February 2019. (2019/02/28)
- A schedule of these indices is included for your convenience. (Courtesy of SAFCEC)

- The general conditions use in this agreement, between the company you work for and the client, is the "General Conditions of Contract for Construction works" (GCC) 2nd Edition (2015). Copies of the relevant pages are included for you convenience. (Courtesy of South African Institution of Civil Engineering)

You are required to provide the following:

5.1 Determine the factor to be applied by deciding on the indices and do the calculation. Marks   (20)

Determine the total value to be claimed from the Client, with the information available, at the end of February 2019.   (5)

[25]

QUESTION 5

Draw up a cash-flow projection indicating the cash requirements to be provided by a contractor who plans to undertake a contract valued at R100 000 and which is estimated to have a duration of 12 months. The cash requirements are to be based on a forecast profit of 20%. Retention money of 10% is to be taken from each payment certificate until the amount held is 5% of the contract amount. Retention will be reduced to 2,5% at contract completion. The defects liability period is 6 months, at the end of which the remaining retention will be paid to the contractor.

Cash-flow Projection							
Month	Cumulative Budget	Monthly Budget	Monthly costs	Retention	Monthly income	Monthly cash flow	Cum. cash flow
0	0						
1	3000						
2	7200						
3	14300						
4	25000						
5	37500						
6	50000						
7	62500						
8	75000						
9	85700						

10	92800						
11	97000						7/…
12	100000						
13							
18							
Totals							

[25]

FULL MARKS = 110   **TOTAL = 100**