PROGRAM	:	NATIONAL DIPLOMA: *BUILDING*
SUBJECT	:	**PRICE ANALYSIS AND ESTIMATING 3**
CODE	:	**PRAE 331**
DATE	:	SUMMER SSA EXAMINATION 2014 2 DECEMBER 2014
DURATION	:	(SESSION 2) 11:30 - 14:30
WEIGHT	:	40: 60
TOTAL MARKS	:	106

EXAMINER	:	F C FESTER
MODERATOR	:	B ILORI
NUMBER OF PAGES	:	5 PAGES

INSTRUCTIONS	:	ANSWER ALL THE QUESTION
REQUIREMENTS	:	2 ANSWER SCRIPTS.

INSTRUCTIONS TO CANDIDATES:

PLEASE READ ALL THE QUESTIONS AND THE INFORMATION
BEFORE ATTEMPTING ANY QUESTIONS

INFORMATION TO BE USED IN THE ANSWERING OF THE QUESTIONS

Use the following Labour rates: *Artisan R95.00/hr all in*
Labourer R25.00/hr all in
Operator R55.00/hr all in
8 Hour days

Specification:
All excavations will take place in pick able material
All concrete to be 1:3:6 mix with 19mm stone
All bricks to be 115x230x75mm SABS approved stocks and red cement smooth face brick
All cement to be 32KPa
All Plaster to be in cement and plaster sand 1:5 mix
All brickwork to be in cement and building sand 1:5 mix
All screeds to be in cement and river sand 1:4 mix. Allow 5mm more than the specified thickness

Constants:
1 Labourer excavates 1m3 of pickable material not exceeding 2m dp in 8 hours
1 Labourer excavates 1m3 of pickable material exceeding 2m dp in 12 hours
It takes 8 labour hours to mix 3 aggregate material
It takes 5 labour hours to mix 2 aggregate material
A bricklayer and labourer lays 600 stock bricks per day
A bricklayer and labourer lays 450 face bricks per day
A labourer joints 30m2 of face brick per hour
100ml of mortar is used to joint 1m2 of face brick
A carpenter and 1 labourer nails 100m of timber per day
A carpenter and 1 labourer nails 50m of Brandering per day
It takes a carpenter and 1 labourer 30 minutes to set up 1 door frame

1 Carpenter and 1 labourer 50m2 of screwing gypsum boards to Brandering with a drill gun (priced in p&G)

A Plasterer and 1 labourer does 30m2 of plaster to walls in one day

A Plaster and 1 labourer does 60m2 of floor screed per day including mixing

Allow 20% wasteage on screeds

A carpenter and 2 labourers hang 15 door per day with electric tools (priced in p&gs)

Allow 3.9m of Brandering per m2 of ceiling

Carting away from site to spoil heap 30m away at 10km/hr

An operator does 100m2 of painting per day

Allow 8m2 for the 1st coat and 7m2 for 2nd coat.

Price the lockset with the price of the door

Allow 1kg of polyfilla for 30m2 of wall

1 Labourer does 30m2 of sanding Polyfilla to ceilings in 2 hour

1 Labourer does 15m2 of Polyfilla to plaster in 1 hour

1 Labourer does 15m2 of sanding Polyfilla to ceilings in 1 hour

A labourer backfills and compacts under floors 150mm deep, 30m2 per day

2 Operators pack 100m2 of concrete roof tiles in 1 day

Concrete by machine: (When you mixing more than 25m3 of concrete in 1 item for academic purposes)

A 760/540 Concrete mixer delivers 540 litres of wet concrete per 3 minute cycle

A 750 litre dumper can take the entire load of concrete to where it is needed in one trip

A Dumper driver is an operator and so is the concrete mixer operator

3 labourers are needed to level the concrete on a surface bed

7 Labourers are needed to fill the mixer in a 1:2:4 mix

Prices:

1 bag cement	= R90
1 m3 River sand	= R340
1 m3 Plaster sand	= R320
1 m3 Building sand	= R280
1 m3 19mm Stone	= R380
1000 Stock Bricks	= R1450
1000 Face Bricks	= R2100
Concrete Mixer	= R1100/day
Dumper	= R900/day
38 x 38 Sawn SAPine for Brandering and battens	= R7.11/m
38 x 76 Sawn SAPine for Purlins	= R15.20/m
50 x 76 Sawn SAPine for Purlins	= R19.45/m
38 x 114 Sawn SAPine for Rafters	= R17.38/m
100 x 4.5mm wire nails (79 per kg) allow 30% waste	= R20/kg
75 x 3.75mm wire nails (143 per kg) allow 30% waste	= R20/kg
For profiles to set up door frames use 3m long	
114 x 38mm Sawn SAPine 6 uses per profile 2 nails per board	= R52.14/each
813 x 2032 x 1.2mm Pressed Steel Door Frame	= R300/each
2 Lever Mortice Lockset	= R105/each
3 Lever Mortice Lockset	= R 180/each
Internal Panel door	= R350/each
External Panel door	= R650/each

4.5 x 45mm Screw for hanging of doors. Packet of 350 (allow 5% waste)	= R120/packet
Plaster primer coverage at 6m2 per litre. 20 Litre drum	= R700/drum
Polyfilla 5kg does 100m2 of spackling on plaster	= R 65/ 5kg Box
100 Grit sandpaper 1 m long does 100m2 of sanding polyfilled plaster	= R19/1 m roll
Polyfilla 1kg does 100m2 of covering screws on ceilings	= R 65/ 5kg Box
100 Grit sandpaper 1 m long does 1000m2 of sanding polyfilled ceilings	= R19/1 m roll
20 Litre drum of PVA 8m2/litre first coat and 7m2/litre second coat	= R650/drum
Electricity Connection plus usage. Units R1.35. Connection and deposit	= R3500.00
Water Connection plus usage. Per Kilolitre R8.00. Connection and deposit	= R900.00
Gate for entrance to site	= R3500.00
Fence from subcontractor per metre	=R15.00/m
The Insurance rate per R100000.00 of construction is	= R100.00

QUESTION 1

Preliminaries
If a project is four months long. Price the following items and state whether they are Time, Value or Fixed Preliminaries

1.1 Insurance
1.2 200m long 3m high fencing around site including 6m wide gate
1.3 Salary for Site Clerk R8000/month
1.4 Kerb Deposit @R2500
1.5 Electricity using 700 units per month   (5 x 2)
                                                                      [10]

QUESTION 2

Earthworks

2.1	Excavate in trenches and holes in pick able material exceeding 2m and not exceeding 4m deep	m3	21	(3)
2.2	Backfill under floors to thickness of 150mm from material available	m3	10	(6)
				[9]

QUESTION 3

Concrete Work

3.1	Concrete to trenches (by hand)	m3	8	(5)
3.2	Concrete to surface bed (by machine)	m3	40	(10)
				[15]

QUESTION 4

Brickwork in Stock/Face Bricks

4.1	One Brick Walls in Superstructure	m2	100	(5)
4.2	Extra over ordinary brickwork for Face with round joints	m2	15	(8)
				[13]

QUESTION 5

Plaster

5.1	12 mm plaster to vertical brick surfaces	m2	200	(5)
5.3	30mm Screed to top of surface bed	m2	80	(5)
				[10]

QUESTION 6

Metalwork

PSDF

Single door frame to suit half brick wall	No	4	[5]

QUESTION 7

Ceilings

6,4mm Gypsum ceiling boards screwed to 38 x 38 branders at 405mm centres			
	m2	80	[8]

QUESTION 8

Roof structure and roof covering

8.1	38 x 38 SAPine battens to take concrete roof tiles @ 305mm Centres	m	400	(5)
8.2	Concrete roof tiles	m2	80	(5)
				[10]

QUESTION 9

Painting

9.1	Two coats PVA to plaster surfaces	m2	212	(7)
9.2	Two Coats PVA to gypsum plaster ceilings	m2	80	(4)
				[11]

QUESTION 10

Doors

External panel doors and 3 lever lockset and furniture	No	4	[5]

QUESTION 11

Although not advisable, at times a QS may be requested to price projects using a number of different but not very accurate systems. Give two examples of when she may use the following:

11.1 Square metre method
11.2 Method by using the enclosed volume of the structure
11.3 Method by counting the seats in a building
11.4 Method by counting the beds in a building
11.5 Method by counting the rooms a building   (5 x 2)

[10]

QUESTION 12

What is "Elemental Costing" and when will the QS apply elemental costing?   [5]

[TOTAL 111]