

10:58 AM



Tue, Apr  
16, 2024  
at 3:20 PM

Email: [dfqeas@saqa.co.za](mailto:dfqeas@saqa.co.za)

New Section 1 Page 1

service provide information financial assistance government grant incentive tax rebate operational

=====

- my application..position contract .management me ..engineering assist..

On Mon, 01 Apr 2024, 21:01 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Explain:G report supply status apply to connected your generation to electricity network new energy technology solution in rsa provide role in the electricity value installation building own electricity

A self build connection project enable national grid .switch on a power new self project afe design ..

-a customer saqa undertaking one self project are designed.undertaking multiple customers

-flow checklist to ensure .small scale embed generation .scale connection.your to grid integrated electricity system a new energy consumer generating and distributing own energy installation .

-explain generator licensing registration generator network .eskom initial configuration cater off grid connection assist .embed embedded generation tariff charge we have a selected charge that scale

Explain .application process trained small sure your generator .

-nrsa size licensing and is utilised as back up source electricity during power interruption that is not grid no point of connector to irrespective is of size ..more 100 kw ..but not point of connector

irre.generator has a maximum capacity of .100 kw but 100mw..has point connection you are export grid maximum period of 36 month size mentioned was exempl.licensing prior generator network

Selection generator network config your product regulation ...

-An off the grid system off the grid stand alone system does not have a point of connection that tie generator to the eskom electricity distribution network generator is there for completed..

- explain .phase encompass primary plant connection work establish scada testing and commissioning plant ensuring compliance code standard relate ipps.

-the project execution phase is executed according to the milestone schedules timelines construction completed.project is ready to grid connect.grid connected date gcd .commissioning and energizing to achieve grid connection as stipulated in the milestone schedule time line.

-test and synchronize .test is undertaking to ensure compliance and commissioning toward

-commercial operation date cod project commercial connected and ready for operation the ppa

-operations phase . The role of gap post grid connection is to ensure that all activities necessary for the safe reliable and optimal operation of the ipa plant and eskom network are communicated and carried out in manner that ensure long term sustainable .value creation for both parties.

-explain role of GAU is to ensure that forecasting date schedule unscheduled outage maintenance plans switch and isolating procedure and ongoing compliance report are communicated between

-explain conductor type allowance electrical

..a transformer static piece .

-explain IPP : connection process consultation and application phase the grid connection process address the need for consultation .with IPP developers consultant to advice on potential.

Explain.It address the process requirements clarification as well any briefing note standard.

Explain .estimated project cost and the associated agreement ipa.submit application .the ipa developer completed or revise an application with requirements provision completed assurance of the right to develop propose .developed submit on application .

-review application and request additional info.

- quotation contacting phase issue .ipa cost evaluate accept decline design concept preliminary design.eskom arrange scope clear..

- raise and pay commitment pay self building projects .business customer subject option all on timing of connection cost .

- explain apply the contractor appoint accredited ensure that correct equipment quality work adhere to eskom stand no work allowed on upstream asset substation .

-step document eskom responsibility in regard saqa undertaking self building electricity connection.responsibility selected site route of project .obtaining land right inclusive of statutory .doing environmental impact study and obtaining final design and risk

assessments..project construction and control plant contractor managing all appointed stakeholder

- explain eskom responsibility.

Accepting the site route selection project ..standars and specification relating to site doing work

-doing quality ckontrol and monktoring construct work .doing site inspecetor .

Step .http eskom equipment specification design and drawing eskom electrification

-step 3 describ describes and motivate your project get a specialiste .

-Name project :tshingombe tshitadi

-background :expo science

-reason bhdling .visiting career student experimental working shopping.

Electricity geographix mva.

ramp up schedule .....

-voltage requirements type of conductor used substation transformer and their size estimated

project .conceptual level summary of the component of the electricity connection construction

-step4.prepare ..

$E1-E2=V1+R1.I1+V2+R2.I2+R3.I3$

$E2-E3=V1+R1.I1+V2+R2.I2+R3.I3$

Network planning report or business case report motivation .completed basic or preliminary

design .infrastructure in line with eskom standard design project risk assessments report.

-step gather the follow drawing copy id compagnytax clearance .adress relever .applier large

projectv quotation .appliervlarge project cost estimated supplier agreement

Step eskom authorities the project ..initial the work eskom supplie appoint submitted final project

On Mon, 01 Apr 2024, 19:36 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Purpose : new building load shedding instage du to high demañd or urgent maintenance being performed at certain power station directed municipality energies your monthly electricity bills good environment loadshedding lighth maintain .

Energy saving tips for kitch appliances .use geyser smartly enérý tips fòr ligthing enrgy tips

-data portal eskom ..the syspém operator ensure that stability of the nationàl electçricity grid is

-transmission plan . at all time by balancing thè supply of elecpricity demand side this donè by

changin home amount of electricity being customet sècond of the day. To importancr anticipate

how much electrical generation oggt over rreduce customer demand side supply side ..usàge

- explain and additional power supply ..apply for an electricity connection existing and çustomer to

national power grid as quickly implemented long business .plans in thi casè residential apply for an

On Mon, 01 Apr 2024, 14:49 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

New.build loadshedding ge 2 in sòme area du to high demand or urgent

maintaining being urgent maintaining being at certain power station direcþ customer

On Mon, 01 Apr 2024, 14:27 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

-explain fire alert construction 2006 . 4 ×148 mw unite tank 1300 -1400 lipre recòrd 18 month can

operate in synchrone condenser opèration regulating the fluctuation in the ñetwork voltage similar

station turbine is 9,45 and 4.1 m diameter combustion chamberting 6 tone each generation weigth

323 tones the exhaust static is 30 m high diametre 10 m in diametre màximum temperature realise

560 degree fuel to ankerlige tanker fuel off loading rate between 300 .1400 litre min fuel storage tank

1.six 350 mw units .installed capacity 21000mw ..20001 capacity .1980 mg ..design effiçieñcy at

ratèd turbine mcr ..%.35,60% .

-ramp last : 34,48 per hour .available over produçtion ...3 yèars 9675Gwh..

Peaking power station .accord cohesive leardership change power to supplemental. Period mòrning

domestic record industrial demànd total storàge pumpagèv station gàz turbine nominal.turbine total

On Mon, 01 Apr 2024, 14:02 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

- explain : fact sheet co coal desaling fact sheet co coal power station C00002.electricty is producedvin

coil firing building a coal fired c0003.c004 ash management cooling technique rev particulate

emission control rev c00009 the of c000clean technologie environment technollgie

environmental general intersted GS gaz Gx generation .Hy hydro :HY0001- pumped storage schem

water transfer hydu palmie technical .hy0003 pumped storage ..dramnuclear aaRw renewable .TD

-explain visitor expanding mandate eskom by promotion generation grouo support eskom daily

during week days the genersl public industry ..

Subjèct to security ..25 km ...protection .installatòn are underground 4 rèversible pump turbine

situatèd..156 m level gènerater 10000MW ..4×250 MW ÈLECTRICIÞY

On Mon, 01 Apr 2024, 13:47 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

-explanation .to requesting information from eskom requests must relate eskom demed review the

submitting a requested considered amount available please note information portal sponsor

sponsorship donation finding recruitment.

-Explain promotion of access to information.

Act effect to constitutional right access state report latest delegation

air compliance with act 20 of 200 .

\_media room publisher ..social ..eskom construction and activate alternative 132kv powerline for central kari 2024..power outage lasting .

-explain electricity technology solar power :photovoltaic solar module made up solar cell photo in series cell are made purification silicon (si).

- p-n junction that utilise energy residence .residence project underway evaluate successful  
solar wind power .principal invalid generation is very much as what during the century diff2  
introduction move of air blade .biomass agricultural.

-technology. Electricity tips electricity safety infographic .fact sheet power series books

-explain about electricity tips .need company educate encourage participative among  
businesses sector use electricity is reduce usage is to switch off unnecessary boiler water number .

- explain power failure sometime eskom or municipality equipment fails the result is

-known where to locate box in your home only affected tripped switch it back circuit fault should

- explain if you are unsure of what do not electrician fix .

-the problems caused by lightning storm a probe .power lines your area or an accident in the  
substation your power failure problems main .

-explain electricity technology safety amounts plate .conducting important routine safety inspect  
appliance repair replacement no doing result in accident breakage can occur home ..electrical home  
can make inspection breakage wear deterioration sign of overheating missing parts screw covers  
switch faulty appliance control door smoothly adequately correctly labelling when loose fixture .  
Psychometric psychometric ..technology .

- explain eskom power series: it important to test equipment regularly switch and off look possible  
problems. Faulty plugs and electric socket .in the data and plug an essential part of air level electricity  
Plug safety tips are for use buying using plug ..look for sabs and use sabs approved ..don't overload  
plug sign and only approved plug .don't not overload plug mother used an adaptor .switch the  
switch off at the wall socket before pulling .do not connect electricity to light socket.never put bare wire  
Explanation educate care education technology

.if the baby in the house ensure wall sockets are covered safety keeping safety the area safe for baby  
play in cords like plug are essential part of our environmental cord also represent safety hazard such  
the tips that follow should be used to minimise

-do not use frayed cords replace worn and frayed cord on appliance immediately. Keep cord  
well away hot stove do not run electrical cord under carpets .don't joint cord with tape.don't run

- renewable energy .water conduction electricity general is thus water in around .

-do not use electrical appliance in the bathroom .never touch electrical appliances with hand .never  
fill a kettle when it plugged in never grass over..never hold an electrical appliance touch metal such as top

-electricity and children are natural interest in plugs children plate loosening house .teach children not  
play electrical socket baby ..

Outside home overload plug cause a fire must adopt will more safety..how to change a light bulb  
identify change .switch off the mains switch on the distribution board or electricity disconnector switch off  
the light switch .lamps bulb changed remove fault type insert correct switch main switch on db .wiring  
a plug :: central cutting the plastic insulator insert twist

On Mon, 01 Apr 2024, 08:30 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

- purpose : explain Eskom:transform input natural environments coal nuclear fuel diesel water and  
wind 90% istma system business continue to legal .

- explain foundation business generation transmission distribution and sale of electricity supplemented  
with the construction new power station infrastructure Gx , Tx ,Dx division finance human  
resource procure information technology telecommunications strategy risk and sustainability legal

- explain stakeholder relation in support legal and compliance relation in support electricity  
business eskom ..industry subsidiary performance turbine .repairs and provides specialised

- explain inputs finance : R18,9 billion 56 billion governed.

-infrastructures : 46466 Mw nominal power station capacity 399546 km power line and cable ..

- environments : 104,87Mt coal burnt 270736 tonnes ..

- parallel 44772 employees R.820 million trainee ..

-nuclear generator africa ..generate electricity from coal optimal.

-fossil fuel based generation ..

Primary energy identity source delivery primary.

- explain : system operator maintain the frequ3 of sysy5 at 50 hz to balance electricity supply and Transmission provide a reliable efficient transmi3 network and energy market servid in rsa
- explain products 191852 Gwh elecicy sales distributor industrial commer coal international . Distribution provide reliable energy and related seevice .
- explain easte and products 30,84 MT ash produced 71,35 KT particulate.emission 206,8MT..Co2..
- explain generation capacity : 30 power station , total nominal capacity

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-Base load stations

Coal -fire station ---38773MW.

Nuclear power 1860 Mw.

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Mid merit and peaking station

Pumped storage 2724 Mw.

-hydro station 600 Mw

-OCGTs 2409 Mw

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Self dispatching energy ..

Transmission..

-transmission 33158 kw

-transforme capacitor 1545000MVA grids ..

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Distribution

Distribution lines 47809 km

Recticulation line 310290 km

Cables 8288km

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Customer 6,7 million

Operating cluster 5

Zone 27

CNCS 308

Service hubs 101

Contact centre 8

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Explain .Strategic intent statements

Intwnt statement.state entity implementation government polich and strategy the share holder

intent statements (sis) outline

government's short to meduim long term objective for eskom to achievd to achieve to

ensure that eskom remain a ritical contribhtor to government goal of ensuring .

-security of electricity supply to the country .

Conduct reporting in line witg model with profil ..

Submit annual strategic documents and report ..

-Provide reliable affordable electricity ..

Ensure and maintain financial .

-consolidated socio economic contributions .

PFMA : ..Minister public entreprise..

Boand of director : audit and risk oversing of internal internal invest3 and finance people and

-executive management comite .capital information and technologi nuclear mana3

On Sun, 31 Mar 2024, 19:59 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Lms frameworks regulatory : explanation :

Information management .compagny :explanation

Eskom mandate from share holder ..

Assis the businesses africa growth providing stability of electricity supply throug provide in efficient

efficiency sustainability maner will achieve an electricity newtwork .generation.transmission and

distribution whist ensuring that is ..

Purposr statement .powe growth syst ..vision sustaina3 power better futhure .

-delivery : missioj statement turn around existing business and rescuable eskom oper2 financial

sustainability create a sustainability eskom serice economie ...

-Explanation strategic objectives : purpose financial operational sustainability facilitator a competitive future energy industry modernise our power ...

Explanation eskom .organizations structure eskom holding cooperate functions .generation .transmission distribution eskom industrial rotek.

Explanation. Leadership eskom board executive executives.committed chairperson acting chief financial .non executive .independence eskom conduct annual .effective. ..

Explanation .investor integrated interim result ..

Gover2 guaranteed government rsa recognise eskom critical role in the economy and remains ensuring eskom financial stability on 28 october 2011 gov announced would extend its

Explain eskom bonds financial years funding repay2 necessity insurance of debt in the domestic and international debt capital ..compare .

\_explain sustainability developments sustainably developments overview assessment.EIA transmission.EIS generation. Archive d project eskom integrated sustainability developments issue into decision ..make long term .provides energy service

-safety health environmental quality policy 32-727

-safety health environmental quality poster 32.

Eskom RTs research direction report ..

Dual 132kv switch station transmission masa ..substation 400kv line to 132 kv .

- supplementary demand response programme load provide the response notified period of 30 minute to six hours to restore reserve replace capacitor maximum duration agreed with the supplier .

-Explanation commercial and residential demand response responsibility.. Eskom is piloting national demand responsibility programme successful pilot test among other the appropriate

Explain CSI .company information:

Leadership subsidiary about electricity sustainability.developments cooperation contact generation coal procurement process primary energy eskom own and various coal

Demand response define measured change in electricity customer or load

Explain .typical reduction activities reducing electricity power production equipment .turning of air conditioning unit shutting lights .

Eskom system is responsible for reliability and security of the grid by monitoring operational.

-power station security so with much need .flexibility and reliability and to maintaining adequate daily operational operational margin cater circumstance stability factor system constraints cause

P

On Sun, 31 Mar 2024, 19:16 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Purpose :orientation industrial ,organisation planning supervision management supervision ..

..management system information data portal student .

-data portal student eskom :

Claim Id .rdkqdn2udun4uze.

Claim passcode :xwb nxmkjh5izpqg

Date of drop - off : 2024 -03-08...10:31:05

-sender .name eskom automa2..organization eskom ..

Email address noreply portals @ eskom .[co.za](https://www.eskom.co.za) .

-files name eskom k87w.csv description 5y data requested size .12.7mb

- send to trying drop off some file service name : tshingombe engineering st peace college.

Email:tshingombe fiston @ [gmail.com](mailto:tshingombefiston@gmail.com)

Drop off same files for .

Process ..https send to eskom .[co.za](https://www.eskom.co.za) drop off.auth=9a2334e836a4f1b1afc6dec30d1fad6 dec 30 d1f50 copyright2023 ..21 days review retrieval

On Sun, 31 Mar 2024, 12:17 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Enquiry: re qualification..

. ID: saqa explanatory return refund ID 201911130002; id 202211165055; 202207085055; ID 22071250145; ID202303115021;

2022-11-16.45

26 mars application .

26 mars .

Enquiry 26 15 :06 SAQA (NQF) act 67 2008 mandates saaa to provide qualification evaluation and advisory services which it does in accordance with saqa nqf as amende march 2017 section a of thr policy criteria stipulate that foreigb award institution meet for qualification to be recognise.

- leaver school dr congo ..statement leave statement n1,n2n3 . Leaver statement ..
- final award graduation certificate .;completed transcript .mark sheet academic record ;translate
- application does not meet requirements not .
- Cvs currilum saqa

Person mr tshingombe tshitadi id number :TIRCOG000910610. Race afric ..vacance 2023 /434 ict

[illegible]



Eaton electrical : cv portal tendered assessment test experimental  
Data portal ups engineering electrical  
..schenalder electrical experimental data compagny electrical test ..completed record  
transcript years fiscality .experimental theoretical ..  
Test job comparative memo explanation to workplace test compare meeting answer in job .

On Sat, 30 Mar 2024, 17:17 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

- Enquiry : qualiry council for trade occupation qcto .engineering n studie  
Skills programme evaluatiin checklist template in line with qqsf .  
Policy 2021 qualification .  
-requirements :qualification  
Qualification parts skills programme : ebngineering electrical n studie trade .  
-type nomenclature :  
-title description : engineering electrical n studie engineering .national trade examination .and n  
diploma saqa transcript engineering developments  
Trade panel wiring chieta .  
-nqf level 5,6,7

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Section b :qualification development quality team detail

-Name surname :tshingombe tshitadi

-Details of qualiry .partener

-name surname and contact of QP

Official assigned to :grace .

-name and contact details of subject matter expert assigned to facilitate quality : grace

-name of Qcto project manager assigne

:

- section record of feedback evaluation and moderation process and details of evaluators and  
moderators assigned to improved quality

- item : date receive Qp from sme post development:

- response .:y

-item: date returned to sme by .

\_returnef.

-date received by qcto central office /qcto project manage ..

Date of feed back by central project .

- sme self evaluation date : 10/11/2023 date feedback : 03/03

- QP.:evaluation date : 10/11/: total number Qp model names (s) moderation .- QP peer moderation :

Qcto : evaluation date :10/11/2023 :total number of qcto

- Qcto peer moderation :

-name of qcto committed for approval

\_date of feeback the outcome

-section d quality of appearance qualification part qualification skill:. programme document

Comment engineering:

-section D qualification appearence qualification part skill programme document .

Criteria : sme Qp qcto response

\_D11.q sectiin a,b,c is completed ;yes;yes;yes;yes

D.112 current qcto template .

D.1.13 document is editing .yes

D.1.14 document ..

\_1.2.1.qualification part qualification skill programme detail document sarisfies policy  
requirements in each of the follo .

- occupational sub frameworks type nomenclature .

- skills programme subfield .qcto curculum codd replacement qualification.

-rationel documentation satisfy policy requirements:

\_1.2.3 purpose : the document satisfie policy requirements. Yes

- 1.2.4 entry requirements: the documentation specifie all relevant yes practical possibilitie.

- for entry into the qualify : recognition rpl document stardard .for awarding satisfaction .:yes .



















- pedagogie technique ; diplome attestation frequentation; prepo graduat electromechanic, electrotechnic ,electronic industrial
- inpp : service motorise
- unikin faculty science department math information

Technical industrial

- and certificate award 1th,2th,3th,4th

Qualification china

Id :

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Originator :St peace college africa institut police faculty engineering .saqa institut foreingn :frameworksqualification nqf policy cat ..research nlr dhet institution : policy dhet dbc policy examinationpaper syllabus .qcto from sabs ..

Originator :Scotiss ;

- sqa uk level 5,6 assessment evaluations reasoning ,india qualification level 5 practical institut ;
- usa qualification engineering std nema standard defense scope trade theory pratical lev ;
- canada trade occupation pratical license the trade license pratical trade test criterion occupation assessment ;australia trade career
- French qualification : professionnel.art metier ; technical engineering: bac laureat .en
- Belguim qualification : professionnel art metier polytech cbec eic lausane
- dr congo qualification :esu epsp

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Purpose : applier science engineering, physic e assessments

- explanation criterion refraction V1 and V2 speed respective meduim lambda 1,lambda 2,wave length changing calculate :

Outcome :evidence low  $\sin \alpha_1 \div \sin \alpha_2 = n_2 \div n_1 = \lambda_{b1} \div \lambda_{b2} = V_1 \div V_2$ :

refraction V1 and V2 speed respective meduim lamb 1,lamba 2,wave length .reflecti in

$\sin \alpha = 1 \div 50$ .

- explanation:thermodynamics compressor fundamental isothermal process :is the temperatures is kept constant unchanged at the pressure increase during compression cooler process polytropic.

- explanation .compression process constant the work input the compress3 procedd foot found pound mass in genersl head .

Outcome : isothermal  $H_{isot} = RT \ln R$ ,  $R = 100 \div 200 \times 10 \ln 100 \div 200$ .

- explanation compressible fluid adiab..integratic isothermal process explain state or true..equation

$PV = \text{constat}$  ;  $p v \text{ constat}$  specifie volume ..

$P \div e \log P \text{ base } e + (V \times V) \div 2g + Z = \text{constant}$

Low..

- Explain fugacity : is the change temperature consider isothermal solid liqyid or gaz .pressure and fugacity is converter gaz at very pressure isentropic

Integral uto  $u \, du = R \times T \int \ln f \text{ to } \ln f$  .

Explanation math second order transition phase . $P..V \div V_o..$

- Define: specific heat at constst similar that constant volume .

- defined : as the rate of change of specificalthalpy at costsnt pressure with temperatures.. $c_p = (dh \div d) T \times p...14 \div 7 = 2.. \dot{Q} \div dt \times p$

The volume of  $c_p$  obtained continues ..

- Statements constant temperature process constant temperature process are reffer isothermal true.

- explanation boiling and condensing process occure at constant tempera2 and are accompagny by a change phase the work fluide ..

Slow expansiin and compression process in equilibrium withconstant .

- isothermal procesd requirements heat or work transfer to or form the surrounding they are not

- constsnt internal energy procesd  $du=0$

- heat and transfer are equal and apposite so that  $S_Q - S_w = 0$

- calxulating thermodynamic fundamental molar .idea gas obey .. $PV = R.T, PV = \text{const}$  boyles low isothermal expansionvolume .

$W = \int p \, dv ] v_1 \text{ to } v_2, RT ..v_2 \div v_1$

- statement are trur ..An atom is the smallest unit of ordinary matter that form a chemical element

- explanation an illustration of the helium atom depicting nucleus pin and the electron cloud distribution black the nucleus upper rigth..

\_helium is reality spherofical symmetric closed resemble the electron cloud alth for more  
 -the classification smallest recognized division of each chemical element ..  
 -the properties : mass range  $1,67 \times 10^{-27}$  to  $4,52 \times 10^{-25}$  electric chargr zero neutral or  
 ion charge diameter range 62 pm (He) to 520 in data page .  
 - component electron and compact nucleus of protons and neutrons..  
 Statements sound and isothetmal .  
 - Velocity of sound process equation velocity of sound iso thermal process ..  
 $Pv=m.R.T.....P=m.R.T \div T= 10 \times 30 \times 20 \div 60 = 10..$   
 -velocity of sound wave a fluid anf we above  $C=dp \div de$ . Sq root  
 .velocity isothermal procesd ...c=...velocity isothermal pro9cess  
 -state explain displacement nodr paint wave particle ..  
 Double antinode excited quartz ehance photo accoustic spectrophonr diffdring th

On Wed, 27 Mar 2024, 18:07 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Purposes:

-Vab=Vbc=Vca=VL, Ib=Ic=Ia.

Za=Zb=Zc=Zp=Zangle q.

-wa=Vab×Ia[cos(30'+q)]

Wc=Vab×Ic.[30°-q]

Wa+wc=Va.Ia[cos(30+q)]+VcbIc[cos(30°-q)]

-wa+wc=VL×IL×(cos30°×cosq-sin3030.sinq)+(cos30°)×cosq+sin30°.sin

P3\$='O'×3×V×I×(cosq)=°O°×3×V×I(sinq)=°O°×3×V×I×sinx

S3\$=°o°×3×V×I..=P3.

Real power

P3\$=°O°×3×V×I×(Cosq)=°O°×3×V×Ixfp

.Q3=O×3×V×I=x[P.3×\$+Q×x\$]

-start delta loop a,c,d.

ZS+Zb=(zab)×(Zca+zbc)÷(zab)+(zca+zca+zbc)

-Za+zcc=(zca)×(zab+zbc)÷(zsc)+(zab+zca)

-Zb=Zab×zbc÷zab+zbc+za

Zab=zab+Zbc+zc×za÷zc.

Zb=Zab×zbc÷÷zab+zbc+zca

Zab=zab+zbc+zcza÷zc..

Zbc=zazb+zb.zc+[zc.za](#)÷za..

□□□□□□□□□□□□□□◇^-

Standard cabling interconcte point charge inductive resisitive 1+2j between l1 -

Neutral ..2-1j between capacitive resisitive l2 -l3.; 3 L1.L3, 2-1j L31 l1..3+3j..1+2j,3+3j l1.l4

#####[]□

Star balanced connection parallele

Generator; connection start synchrone G1

Generator;connection delta synchrone line to line

30Kw@0,8 phasing back ;15kw 0,8 r

797 volt back phasor

-start a(64+16j),,(0,80+10j ohm

1,4+1,6j ohm / 0,80+1,0j

G1 start g2 deltat ..30kw@0,8 baxk ..15kw line to line..if back = G2=(1500+1250).V2=546,3

V1=721.G1..(-30732-52352j)

Befor g2=(-15000-11250j), v2 = 6559..

G2=(-24452-22675j)

$$Z_b = Z_c = Z_a @ a^\circ \quad \dots I_a + I_b + I_c \dots$$

$$V_a = V @ 0^\circ$$

$$V_b = V @ -120^\circ$$

$$V_c = V @ -240^\circ$$

$$V_a = V_{ab} = V @ 30^\circ,$$

$$V_b = V_{bc} = V @ -90^\circ$$

$$V_c = V_{ca} = V @ -210^\circ$$

$$V_{An} = V / \sqrt{3} @ 0^\circ$$

$$V_{Bn} = V / \sqrt{3} @ -120^\circ$$

$$V_{Cn} = V / \sqrt{3} @ -240^\circ$$

Connection delta  $v_a, v_c, v_b$  generation and  $z_1$  start charge diagram fresnel

$$V_{AB} = V_a - v_b$$

$$V_{BC} = V_b - v_c$$

$$V_{CA} = V_c - v_a$$

Connection [va.vb.vc](#) deltata to line z.z.z delta  $\dots v_a = v_{ab} = V @ 30^\circ$

$$V_b = v_{bc} = V @ -90^\circ$$

$$V_c = v_{ca} = V @ -210^\circ$$

$$I_{AB} = V_{AB} / Z_{ab} = 1 @ (30^\circ - a)$$

$$I_{BC} = V_{BC} / Z_{bc} = 1 @ (90^\circ - a)$$

$$I_{CA} = V_{CA} / Z_{ca} = 100 (=$$

$$I_a = \sqrt{3} @ -30^\circ I_{AB}$$

$$I_b = \sqrt{3} @ 30^\circ I_{AB}$$

$$V_{ab} + Z_s I_b = v_{ab} + z_s I_a$$

$$V_{bc} + z_s I_c = v_{bc} + z_s I_b$$

$$V_{ca} + z_s I_a = v_{ca} + z_s I_c$$

Kapp..

Increase decrease voltage..

$$V_2 \dots V_2 - V_2 = R_s I_2 \cos \phi + X_s I_2 \sin \phi \dots$$

$$V_{Z1} = V_{Z2} = V_{Z3} \text{ simple valve } , I_1, I_2, I_3 = V / Z$$

$$V_L = V_{PH} / \sqrt{3}$$

$$I_A = V_L / Z = (v_{ph} / \sqrt{3}) / Z$$

$$I_A = v_{ph} / Z \times \sqrt{3} = v_{ph} \times \sqrt{3} / Z$$

$$I_{start} = v_L / Z = v_{ph} / \sqrt{3} / Z = v_{ph} \times \sqrt{3} / Z$$

$$\text{Power start} = v_{ph} \times I_{start} \times \sqrt{3} \times \cos \phi$$

$$\text{Power start} = \frac{v_{ph}^2}{Z} \times \sqrt{3} \times \cos \phi$$

$$P_{star} = v_{ph} \times v_{ph} / Z \times \sqrt{3}$$

-delta conection  $z_1, z_2, z_3, L_1, L_2, L_3$ .

J current reception.  $I_L = I_A; j = I / \sqrt{3}$ ..

$$J = v_{ph} / Z; j = I_A / \sqrt{3}$$

$$V_{ph} / Z = I_A / \sqrt{3}$$

$$I_{AZ} = v_{ph} \times \sqrt{3} / Z$$

$$I_A = v_{ph} \times \sqrt{3} / Z$$

$$V_{ph} / Z = U_a / \sqrt{3}$$

$$I_{az} = v_{ph} \times \sqrt{3} / Z$$

$$\text{Power delta} = v_{ph} \times I_{az} \times \sqrt{3} \times \cos \phi$$

$$P = \sqrt{3} \times v_{ph} \times I_{az} \times \cos \phi$$

$$P = 3 \times v_{ph} \times v_{ph} / Z \times \cos \phi$$

Installation substation 70% max 70% ..

Worplace manufacture .ligthing .kw ;turninf non 10 hp comlressor ,pump incendie .15hp after

examiner customer lighthning turning 5 min pump ..factor factor interval of demNd x diversitt

excecutuin 15 minute  $\times 1,0$ .loading lighthning 5 kw ,factor of output demNd of .diversitt time of

execution of 15 minute  $\times 0, \times \times + 500 \text{ watt} \times 0,1 = 2,25$  .5 min,current =  $15 \times 1500 \text{ w} \times 0,1 = 2,25 \text{ kw}$

5 min  $\times 1,10 = 0,30$

-load turn machinery =  $10 \text{ cv} \times 736 \times 33 = 2,46$

Compressor =  $20 \text{ cv} \times 7,36 \times 5 = 7,46 \text{ kw}$

Load charge demand =  $15 \text{ cv} \times 7,36 \times 0,0 = 00 \text{ kw}$

Purpose: Qualification lab workshop practical

Engineering electrical power system :

Electrical workshop tools on precaution workshop practical in discipline design equipment.

-Task 1a is concerned to design domestic explanation low:

Plug bulb fan motor

-assignment domestic load calculation .

Appliance unit power rating daily usage energy consumption :fridge 100 400watt 16hour  $400 \times 16 =$

6400wh;tv 27 unit 75 watt 12 h  $75 \times 12 = 900w$ ;fan 36 unit 50 w 24 h  $50 \times 24 = 1200w$ ;tube light

12.6 unit 35 watt full 12 h  $35 \times 12 = 4200w$ ; (energy stove 9 unit ; 25 2h  $2000 \times 2 = 4000w$

;(Motor pump 420 unit 2000watt 2..

Oven 480 unit  $\times 3000w$  .2h  $\therefore 3000 \times 5 = 15000..$ ) energy watt unit 30

month 1000kwh .. 



-list of experiment topics lab safety .electrical wiring; domestic load calculation and solar system design ;introduction to sketch .introduction 3 print .introduction to cnc machine process .pcb milling process introduction to solder 2 process final..

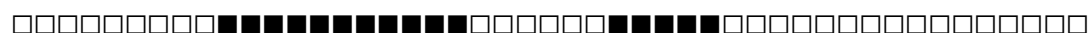
- the chance or probability experience hazard description school psychology can respiratory poor wiring

-Lab electrical wiring standard size of wiring 18Aw to 1Aw..;

Gauge service entrance 3 /0,200Amp..1/0,,1/4 15 Amp

- solid bar copper wire: AWG 10 to 40; nominal diameter 2,6 to 0,079 /0,005





-assessments: with gauge of wire used for 3/24(10AwG)

Power dissipation power=  $p = V \times I$  .. $p = 235 \times 10 = 2350w$ .

Provide brief comparison copper conductivity

Safety at workplace measurement instrument. : fundamental safety safe usage of lab equipment.

Tools : tester , voltmeter ammeter multimeter oscilloscope signal generation dc power supply..

-Linear circuit lab





: Dc power supplies ;function generator .digital and analog voltage and ammeter prototyping

-channels number of input signal oscilloscope :vertical ,horizontal base ,trigger of the

oscilloscope trigger level to stabilise ..

Assessments select device switchover ..description ..device ..measure of time interval

oscilloscope determine live neutral current consumer ..measure of capacitance wire ..

Used dc variable power to obtain 5 vdc obtain the output wave form on oscilloscope channel ..use

function generation to obtain 5 khz sin wave signal amplitude ..plot out wave of your oscillator calculation

- rated 10 uf to 220 uf ; empirical 10.89 uf ..absolute 110-10,88 uf to 220-2299uf=99uf ..relative

error  $\frac{FA-FM.VI}{Fx} \times 100\% = 8,9\%$

$\frac{2200-2299}{2200} \times 100\% = 4,5$

Color code color-r-g code value 3,3kohm to 75 to 2000ohm to 820..empirical value 3,31 kto

76t929,230ti ..absolute error  $117-76=1,1=200\_2000=230..820-824=4ohm..relative..1 ohm \div 1 \times 100\%$

$\frac{-20,00-20239}{2000} \times 10 = 1,15\%$

$\frac{820-829}{820} \times 100\% = 0,48$

On Tue, 26 Mar 2024, 20:50 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Fundamental input output

$$-y=t.t+1; y..p(x)=2X; Q(x)=2x.x.x$$

$$Dx/dx=dy/dx+v.du/dx.$$

$$Dy/dx+2x.y=2x.x.x$$

$$Du/dx+2x.u=o$$

$$Vs=pi.integral (b) to (a).(y1.y1)-(y2.y2)$$

$$Am-y=integral (b) to (a)rdA..$$

$$dp/dt=2dx/dt-100/x.x\times dx/d$$

$$f=1\div 2\pi\times l.c ..$$

$$Vave=Vmax\div \pi\times \cos\$. ..$$

$$Idc=vdc/r.l...vdc=vm-idc\div 4f.c...vm =vdc+idc\div 4.f.c..$$

$$Np/ns=vp/vz....$$

$$B=u.o.i/2.r..$$

---

Construction diagram network va vb

$$I1=I1'+I1''+I1'''$$

$$I2=I2'+I2''+I2'''$$

$$I3=I3'+I3''+I3'''$$

$$IT=I1+I2+I3$$

$$Vab=va-vb$$

$$Va=Rt\div R1+R3\times 10..$$

$$IT=V.T\div Z.T.$$

$$IL=V\times I\div j\times l$$

Phasege disphase angular vector diagraeme

$$I1=j12-j31$$

$$I2=j23-j12$$

$$I3=j31-j23$$

$$I1+I2+I3=0$$

---

Construction component start delta banced

$$J.2.3= U/Z.2.3 ; S3.1=U/Z.3.q..$$

$$I=Sq.x3\times j.../ Sq.2 =U/Z1.2..$$

Condesator start delta

$$C=Q\div U; \quad Q=U\times U.xC\times w$$

$$\Delta =Q=3\times U\times U.xC\times w$$

$$Q=3\times V\times V\times C\times w$$

$$C \text{ start} = 3\times C\text{deltar}..$$

-Wiring diagram: 1 motor and 3 bulb 3 phase on line

$$QL1=vL1\times IL\times \sin=230\times 2\times 96=276$$

$$QL2= vL2\times UL2\times \sin \text{ alp } 2=230\times 3\times 0$$

$$QL3=vL3\times lph3\times \sin \text{ alph}=230\times 2,3=575va$$

$$Qt=QL+QL2+QL3=,, 276+0-575=299va$$

---

L1 resistor l2 restor l3 neutral in delta

$$L1 =v1.i1.\cos 1=230\times 2\times 0,8=368w$$

$$L2=v2.i2.\cos 2=230\times 3\times 1=690w$$

$$L3=v3.i3.\cos 3=230\times 2,5\times 0=0w$$

$$P=p1+p2+p3=360+690+0=1060w.$$

---

Motor eat U:230v/400..i=5,45/9,43,p=5kw.cos=0,8 terminal 9,43 conne2 networking 400V..

$$V \text{ ph}=v\div 1.73=400\div 1,73=230V, \text{ lph} =P/V.1,73\times \cos=2850/400\times 1,73\times 0,85=4,76$$

---

Voltage resistor vph=u\div 1,73=230

$$\text{lph}=P=vph\times 1.73\times 1..$$

$$R=Z=VPH/IPH=230=130$$

$$WA=|Vb|\times |Ia| \cos (30'+0), \text{ wc} =|vcb| \times \cos (30' \text{ aph})$$

$$Vab = vbc =vca \text{ vl}; \text{ lb=lc=la...zazb=zczp..angle}$$

$$Wa= vab\times Ia$$

On Tue, 26 Mar 2024, 18:22 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

-purpose : engineering practice 24,nqf 6,5,4.

month .code trade component

-Cabling joint ,fridge;wind armature ;plc;building ; dc convert ;installation;digital control ; design circuit ; installation ; measure knowledge substation; heavy

voltage;electrodynamics;electronics ;speed;diode resistancr;generator; hand toolse use;

induction systems plc ; invert ; load magnetic; motor starte ; panel wiring readung megger ;

-7.qualification frameworks council .applie mathematics and science engineering for resolved

## ----- OUTCOME SUBJECT ENTRY

engineering trade occupation low .work permiiy practical eic power system electric .

Design : linear circuit lab dc power supply function work low standar size .trade advancedd system integratiob

\_plant mathematics system .

Trade association ammandment.

Trade basic advance . x .ex(exlnx+e÷x)x=work exponential logic .

-x work operationel factor emped2 x .em product ..e.x logorith activity x inconu add and divided

work exponent x work facfor linearity .entry exhibitions motion low

- statistic analyse visa technique technologie rating minimum maximums

variations x=v , variation x =dy÷dx=d2y÷d2.

Low:

-x work operation .x en produc f e.x logarith activity ,x work factor linear

derivative ,integration testing low panel linear ,x operation ac .dc cirrent circuit ,assignments marks

dy÷dx.working labor operator funda6 sys5 [work2.work](#) in time frame allocs5 work step x logic n

-permit 24 month permit mark allocation time table 8 module ..

Statements:

-ln.Vab=va-vb;lnva=R2÷R1+R2+VT;dy÷dx=X.exp ex(e.x ln .x+e÷x).exp. x

Dy÷Dz= ;z=(R.(x.z.z).e÷R..e(RC×Z2÷RC+Z2)×(RC+Z2÷RC+Z2.ln.RC+Z2÷RC+Z2)\*exp..e÷Rc+z2÷Rc+z2)

=(I.Z÷2×c×2p ×[1-40÷360]).c×(I.Z÷2×c2p×(1-40÷360).(I×Z÷e.2c×

2p×(1-40÷360)×ln.lxz÷2cp(1-40÷30)+e÷Uxz÷2c2p×(1-40÷30).l.Z÷2c2p×(1-40÷30)

-dp÷dt=2dx÷dt=2.dxd÷dt=100÷x.x.;v.c÷t.r=2dx÷dt-100÷x.d.s

V÷Z.T=2dx÷dt;100÷x,dx,dx;; V1=V2.t2÷T2;dy÷dx..v.vw.t2÷t linear .

Low suppliie..

Explanation mathematic :

-----  
Limite rule

Deriver rule

Differential rules

Chain derive rules

Second deruve rules

Integral rules

\_explanation electrotechnic rules

Outcom eic symbole drawing

Labelling.

R.I×IT=R1.I2+R2.I2+R3.I3+R4.I4

Et1-E2=R1.I2+R2.I2+R3.I3+R4.I.4

E2.E3=R1.I2+R2.I2+I3.R3+R4.I4...

Rt = R1+R2+..Rn..

Rt // =1÷1÷R1+1/R2 +1/Rn

Explain low word leonard methodr speed kontrok base factor dc motor speed applie voltage

armature ..motor generator ;motor drivs la arma3 current la .v.t fiels curre2 if decrease motor la..

Explanationlow of 4 list smooth speed control over ..the speed regenerative ..usinf over

excitation synxhroned draw back leonard

Dc serie motor working 3 characteristic curen vs armature current speee vs torque ..Tax

flux .la ..equation Eb=p.flux.n.z/60 ..equation toraue flux armature current T=if x la ..

Advantage serie vast staring torque easy assembly .protection easy ..

- peak value ac current and make labelled positive negative sine wave alterations..

$V_p - p = 2 \times v_p \dots v_p = a.c. \dots v_p - 2 v_p$  positive  $v_p - p = 2 \times v_p$ ,  $v_p - p = 2 \times 170v = 340..v_{ag}$

Power factor  $Q = E \div Q, C = 1 \div 2 \pi \times f \times c..$

$Z_{totL} = z_{cc} // (z_L - I R) \dots; I \times Z$

Transfo

$Z_t = R_x.jx.l \div R + jx.l ; I.Z = P.Z \div V.z$

$R_s = V + (max).v_2 \div I.Z(max) ..$

$e_1 = E_m \sin \omega t ; e_2 = k_2.E_m \sin 2\omega t \dots; e_3 = k_3.e_m \sin 3\omega t$

- industrial electronics

Test trade

1-losses  $\div$  input;  $1 - I_1.R_1 + W \div V_1.I_1 \cos$

Wiring design: load field serie parallele

Developing circuit serie parrallele start delta connection ..

$R_x.I_x.l = 3 \times R_x.I_x.l \dots; I = j; I = j..3$

$R \div 3 \times I.l \times I$

$E = 1/R_1 + 1/R_2 \times j \times t$  start .

.delta  $I = j .. R_x \times j \times t ..$

$I = j; = j.sq \text{ root } 3.$

$P = R.(j \times sq \text{ root } 3 \text{ or } 1.73$

$E = 3 \times R \times j \times t$

$E = 3 \times (1/R_1 + 1/R_2) \times j \times t$

$E = 3 \times (R_q + R_w) \times j \times t \dots$

$X_l/3; X_C ..$

$Z_T = 1/Z_1 + 1/Z_2 + 1/Z_3$

$Z_T = Z_1 + Z_2 + Z_3$

$G_t = G_1 + G_2 + G_3$

$E_1 = 1/Z_1 + 1/Z_2 + 1/Z_3 \times (j \times t)$

$E = 3.(z_1 + z_2 + z_3) \times (j \times t)$

$E_2 = 1/z_2.1 + 1/z_2.2 + 1/z_2.3 \times (j \times t)$

$E_3 = 1/z_3.1 + 1/z_3.2 + 1/z_3.3$

$E_T = E_1 + E_2 + E_3 ..$

$E_T = [1/z_1 + 1/z_2 + 1/z_3.(j.t)] \times [1/z_2.1 + 1/z_2.2 + 1/z_2.3 \times (j \times t) + [1/z_3.1 + 1/z_3.2 + 1/z_3.3 \times (j \times t)]$

$E_t \text{ serie} = [z_1 + z_2 + z_3(j \times t)] + [z_2.1 + z_2.2 + z_2.3(j \times t)] + [z_1.1 + z_2 + z_3.3(j \times t)]$

$E_T = [1/z_1 + 1/z_2 + 1/z_3(j \times t)] + [1/z_2.1 + 1/z_2.2 + 1/z_2.3(j \times t)] + [1/z_3.1 + 1/z_3.2 + 1/z_3.3(j \times t)].$

$[Z_1 + Z_2 + Z_3(j \times t)] + [Z_2.1 + 1/z_2.2 + z_2.3(j \times t)] + [z_3.1 + z_3.2 + z_3.3(j \times t)]$

Conductance ..impedance ..suspectance load ..networks

On Mon, 25 Mar 2024, 21:29 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Purposes: saqa qualification n diploma

-----  
engineering code trade component and

N diploma log n6.n diploma level theoretically basework skill and practical basework

pratical ..component trade manufacture explanation low based outcom low based .

"(Plc code trade manufacture design; ;renewables solar.hydro electrical plant power .; ligthing

system incadescence compact halogen..electronic component .appliance domestic washing

machine .dc machine motor generator ..ac synchrouse bmeasure instrument"

□□□□□□□□■□□□□□□□□□□□

□□□□□□□□■□□□□□□□□□□□

□□□□□□□□□□○□

-undertaking material streigth test material rop .("\$")

package inspection. Check material design ("\$")

material

-laballing sabs code pratical wirie size

marking off CODE CABLE PLASTIC POLYSTERE ..CODE MANUFACTURE





- explanation dc machine testing name test to be performed on dc machine in order to assess its condition dc method rope brake test couple sainburg method ..outcomes ;  $T=(W-S) \times r$ ..  
Efficiency  $= \frac{V \times I}{V \times I + I^2 \times R_a + I}$ .
- Explain each of the test mentioned in above .air cooled .pulwy belt ropes scale , mass
- Emf .equation of generator.
- Drawing the characteristic curvers of generator clearly showings the following..terminal full
- Outcom - open circhit terminal volyage agains field current .
- calculate the magnitude of the generated .e.mf accross the armature ..emf  $= V + IR$ ..
- Outcom cLcule the magnitude of neee for compound - wound generatoes ..
- efficiency testing of dc machine all constant and variables losses that occur in dc machines ...efficiency  $= \frac{\text{ourpur power}}{\text{input power}} \times 100$ ..
- Outcome : armature loss  $= I^2 \times R_a$ ..watt
- Windage loss iron loss in the core bearing friction loss commutator ..
- explanation: why the iron part of dc machines are laminated for direct man.
- Name all constant and variables losses that occur in dc machine ..
- iron part machine are lamed .outcom reduce losses magnetostriction
- caxulate the efficiency of dc machines using method ..outcomes directmethod methode summation losses ..regenerative methode back to back trsr .. $V - I(l_a R_a + I_s v + C) \div V \cdot I \times 100$ ;  $2\pi \cdot n / 60$ ..  
 $= 2\pi \cdot n(w-s) \times r \div 60$  ; input  $= V \cdot I$ ..  
 $= V \cdot I \div V \cdot I + I_a R_a + I_s V \cdot I_a \times 100$
- starting of thre phase induction mktor ..explain slip with regard to three phase induction motors similar to that of a three phase rorque maner order..
- Explanation calculate following slip : synchronous speed actual speed .. outcome  $s = \frac{N - nr}{N}$ .. .s per unit slip .N = synchronization speed of fiels revolution minimum ..nr = actual speed of the rotor ..explanations with aid of circuit diagram how three phase induction motor are started using .the following methode outcom direct on line starrng ..reduced voltage starting .motor resistance starting ..small motor torque of fan is proportional to the square .. $V_{ph} = V_L \div 3$
- synchronkuse alternator compare the construction of a synchronous alternator with synchronous
- explanation with aid of circuit diagram how two single phase alternator are synxhronised a common busbar system .- synchronous motor low .outcome a synchronous motors is wound magnetic field stator and rotor coul is in the same level speee fiels nr is equal to na actial .slip rotatinf flux slip
- explanations how this motor can uaed to improves the overalk power factor of a plant in the case of shunt motee the movement the armature short circuit outcome; no - volt coik and it enersige in the case of a serie motor switch ofu exceed predetermie.
- explanation transformer: cooling of transformer ..explain the need for cooling of transformer losses air coolinf small transformateur ..oil cooling ..tfo ib oil tank minerak ..
- explanatort need for cooling of transformer ans : losses in transformation ..
- Explanation the differences methode used to cool a transformer methode aur coil is use Oil tabk the heat is transferred the windinf oil conductive
- $N_1 \cdot N_2 \cdot I_1 \div I_2 \cdot V_1 \cdot V_2 \dots m$ ..
- protection of transformers explain moisture form overloads short circuit .lossses in a transformer .distinguish losses transformer self induction using transfo ..auto trabsfo ..for step using cooling of transfo earthing transfo discobbectiob hr..
- explanation earthing system ; outcome : equipment power statuob .shield conductor diagram IT
- explanation: w supply neutral conductor suppliers consuctor must determination consequencesof protection earth poinr tank supportr structure earth continuiry conductor...
- explanation power management: outcome; domestic and industrial consumer billing system energy charge of domestic consumer the two porr tarrif that large consumer are charged prepaid metering
- maximum demand time swirch time time of use ripple relay radio conyrok tarrif mcb consumer
- renewablw enwrgr salon energy state advantage solarw dc converted ,ups ..uninterrupted power
- Explanation programmable logic controller plx ..comment used language is plc

On Mon, 25 Mar 2024, 17:33 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Purose :learner examination completed

Applies skill electrical trade theory , electrotechnology ; electrotechnic ,control

logic .logic system to resolve engineering electrical .science engineering outcom design

analyse qualification framework low exhibitions value examination evidence

- appliance explain wath is an appliance the two classe of appliances three cateforie of

appliance ; evidence outcome fixed appliance tools portable appliances stationary

-explanation low assessments : the basic principle of operation of an induction .cooker operation of the following.

- three heat stove switch .cooking appliance include built stoves oven hobs and like
- simmerstat switches
- rheostat fixed winding isolate earth stove 16A rating ,socket 0,5m. 2,2mm.
- oven thermostat switch ..
- explanation evidence low .the principle of operation the following type of space heaters.;of space ; outcome heater ,convection heater ,infrared heater,radiant heater,ceramic fan force
- smarter energy regulator the bending of alimentaire strip which opens and close a set of contact a heating element which supplies heat..

water heater : explanation the principle of operation of the following types of water heater , tank less water tank less water .heat pump water heater solar power heater condensinf water heater

- washing machine type available. Explanation. The principle of operation of the following washing machine outcome low semi automatic fully automatic.. low speed medium speed high speed
- explanation of type of lighting : 3 type basic of lighting ; outcome ambient lighting general lighting .task lighting accent lighting..lamp incandescence lamp mercure vapour .
- explanation emf equation of motor dc ..outcome calculation magnitude of the back emf induced in
- explanation and design drawing the characteristic curves of motor ..outcome flux against field current ;speed against armature current ; torque against armature current ;calculate the torque
- explanation: non sinusoidal waves dc determine the form factor of non sinusoidal wave.voltage .max min time
- single-phase circuit component have on the current in ac circuit :outcome
- explanation different between algebraic and vector factor quantity .outcome fresnel
- explaination in the conceptual impedance and also calculate the impedance and calculate the impedance of the following loads . Square root /  $Z = \sqrt{R^2 + (X_L - X_C)^2}$
- resistance  $Z = R$ ,
- inductor  $Z = R + jX_L$
- Capacitor  $Z = R - jX_C$
- explanation draw waveform and vector phasor diagrams for following circuit.. resistance vector

Inductive | \_\_\_\_\_ >

- explanation resonance and effect in serie outcome  $X_L = 2\pi f \times L$

Outcome low statement and determinant effects power factor and show by means of simple diagrams how can correct outcome  $P = V \times I \times \cos \theta$  ...  $Q = V \times I \times \sin \theta$

\_\_\_\_\_ | -----

- explanation.three phase balanced load :  $I_L = I_{L2} - I_{L3} \dots \times \cos \theta \times 30^\circ$

Outcome statement the advantage of three phase system over single phase system .three supply is more versatile machine deliver high same size..

- explanation drawing the wave forms and vector diagrams the voltage distribution..
- three phase system : statements the relationships between phase balanced load type of load :  $P = (V_p \times I_p \times \cos \theta) + (V_{p2} \times I_{p2} \times \cos \theta + V_{p3} \times I_{p3} \times \cos \theta)$
- $V = 3 \times V_L \times I_L \times \cos \theta \times n$
- explaining low three phase unbalanced ..explain difference between and unbalanced load
- balanced system three phase current are equal having start neutral zero current difference  $I_{L1} + I_{L2} + I_{L3}$
- draw vector diagram of three phase unbalanced load is calculated .

On Mon, 25 Mar 2024, 16:30 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

5.Purpose: entry criteria minimums. Trade qualification occupation test trade Industrial orientations.

- 5.1.knowledge:recall and understand application industrial orientations:design analyse investigate engineering studies learning base vocational means evaluation :didactic module focus
- Standard in trade .industrial council
- development service close cooperation company educational
- supervisor function control task subordination teach workness
- unsafe working iso 19000 financing new project business venture .
- purpose independent capital business conduct unsafe condition.
- planning work advantage policy training. Meetings new employee control exercise main power .

5.2. Knowledge recall and understand .applications. plant operation : Chemistry : and chemical process good example cellulose wood rubber .C.H8.

-organix solve acetan catalyse react .original main purpose.  
 -react gaz  $N(Og)+O2(g)=NO2(g)$ ,  
 $NO2(g)+Co(g)+Co(g)=(Co2g)$   
 $C+O2=Co2..70\%$  combustion,  $H2..H2+1/2.O2=H2O$   
 Convection radiation conduction compression mettall hydrogen oxygen present steam boilem ..  
 $hsu=hf+(xhfg)_[(tsu_{ts})]$   
 5.3 knowledge recall understand application electrotechnology:  
 Dc machine protection : poles shoes , shifting 4 factor average vLue .sin define ..tree  
 singles transformer , decimal number necessaire step serie motor application.  
 5.4 knowledge : recall and understand , application electrical trade theory ..appliance  
 electrique washing machine domestic appluance type machine maintenamce  
 installation..illumination , ac , dc current machine transformer instrument measure material  
 -Exam trimester learner 2 formal class module 100 mark duration minimu pass mark promotion  
 mark 40 +60.assessment.

On Sun, 24 Mar 2024, 21:06 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:  
 Purpose: re -agreement distance university years occupation semmester pass examination college  
 university degree research topics skill development university rsa  
 -qualification equivalente

---

|Id saqa :96856 |NQFlev6| 3 years | of experience:

---

technical tvet	university
college subject	exempted subject

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-communication n3, |communication  
 |N4,n5,n6 ,nqf7. | skill:1,2,3, |  
 English business  
 Orientation industri  
 Supervision manag  
 Communic at skill adm|

---

-computer n3  
 | N4,n5,n6,nqf7 |computer skill |  
 1,2,3,  
 Info manag syst | introduct ims  
 Information manag |  
 Info process  
 It

---

-mathematic n3 | mathematics 1,2,3|  
 |N4,N5,N6.nqf7

---

Industrial electronics | electronics 1,2,3  
 N3,n4,n5,n6 nqf7 |  
 Electrical trade theory| power elect1,2,3  
 Electrotechnology | machine elect  
 Electrotechnic |  
 Control logic |control electri1,2,3  
 Logic syst  
 Digital electronics |  
 Radio television  
 Radar missile

---

engineering science| chemical 1,2,3

N3,n4,n5,n6	physics 1,2,3
Plant operation	
Power machine	
Science buildings	
Carpentry	
Wood work	
Bricline	
Civil	
Diesel	
Mechanotechnical	
Turning fitting	

---

On Sun, 24 Mar 2024, 09:29 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Theoretical framework base Experimental  
 experience outcome: engineering electrical  
 Fundamental basic electrical trade  
 \_construction trade

Opwrationel trade low rules applied trade skill to resolve trade skill or science engineering.

-applie sabs code of pratice wiring premise .trade

Construction component structural theoreticak ..operation safety trade tools safet i rules narse plat  
 machine building ..sign fire smoke ;injuries fire hazard cut space save damage of good is prevented.

- cell advantagr distange of component .construction single high efficiency at full load silent oper2.

- transfo little core and maintenance .open aire cooling coding transformer assumef..secondairy cell  
 advantage great capaci2 thsn primary cell deally emergency application life ..disavatage more than  
 primary cell regular maintenance period traditionallt less suited for ..code collour sketch eic .carbon

resistor potention variable capacitor zener diode p p transistor battery cells .polarization carbon

-Dc machine theoretical applie .component yoke poles shoes bushes back wand motor moving  
 brushes in generation poles field series .number of pairs of used .strength magnetic field .radte  
 magnetic flux cut the moving conductor number field.

-generator ward leanard motor generator system .shunt generator used where constant voltage is

Series generatir a booster on dc line transmission line ..

Flux armature ..

-trade applie skill to resolve skill : domestic aappliance ..washing machine imersion water  
 heater protection steel conduct pipe earth

-ac machines measuring instrument electronic.

Material used in the manufacture of semie conductor

- special characteristics: special arc funace transformer power require..

- control system like componentation electrical network allowed for process to monitorred  
 regulated environ control system or overall electrical.

Static control .analogue conversion .

-electrotechnic principal. Nuclease positive low directly proportional type algebraic sum emf  
 principal change in flux linking with circuit .

- movement of conductor in a magnetic field .increasw decrease curent circuit .carbon  
 brushed .graphite copper graphite.efficiency load 97.moving silence magnetic circuit winding tank

- connecting electrical .machine pratical tips for connecting.

- make sure righ joint .check size of lags .make sure crimping tools that .fit .

Purose of joint :installation core inslection of equipment locating of the righ tools for jobs .

Make sure tha yo know tools box organised store tour tools safe

Fundamental low skill formuler :

Explanation caculation valut size ..coulom.newron joule ..theorem

- engin2 drawing .welding pc drauting joint meyal ..screwthred arc welding resistance lab joint  
 corner join butt join sc first angle orthographic projection coupling projection machining

On Sat, 23 Mar 2024, 17:19 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

2.purpose : criteria entry trade

---

theoretical and pratical examination n diploma subject .occupation council trade and qualification  
 trade engineering studie field

Subject : electrotechnologie ,trade theory electrical , orientation industrial, plant  
operationel ..industriel electronics .engineering science .engineering

Trade

-Outcome subject : trade orientation and industrial sector growth in developing countries sadc .

-industry orientation exporting and productivity manufacture way engineering electrical system

-econometric methodologie : trade requirements operationel task step

-estimation : depended variable is log labour productivity skill development chieta merseta training  
authoritu saqa

X freq :

-Acknowledged: scaling module task subject trade industriel requirements logic  
methodic ..energetical supplie saling buying commissioner. Metering installation building db box lab  
workshop electrotechnologie undertaking material redesign.

-classification of manufacturing:

Model industrie sector primary mining mineral electrical engineering secondairy industriel  
production component .and industriel production energy or municipalitu revenue commissioner

customer: according sabs. Act hortoring eic..coding industriel trading .

- labour intensive industrie: industrial vulcanisation .

-manufacture :joule

-labour intensive industrie: industrie scale manufacture

-specialised supplie industrie : compagny trading .

Solar panel manufacturing ;transformer manufacturing ;business ; cctv camera manufacturing  
unity .television .display device :robotics mechatronics industriel

-single double door refrigeration industrie washing machine repair ;phase AC motor panel  
industrial;water puri2 repaire

-introduc to electruc trade job opportunity: safety precaution and typist .tools equipment

-how 2 way switch electrical board work wath stones bridge key:

- industry orientation:training job market emplyment are looking candidat industriel tools team  
build assessment. Understanding market orientations and how it works wath is market

orientations custome market orientation vs other strategies real work market pratical trading

-| |star ratinf |min dep|stock trade|perc| |

Load min

-amen trase

Interact

Tasty trade

-----  
3.Purpose: pratical trade national frameworks qualification

Relate theoretical framework based vocational

-requirement:

3.1tools instrumental

- trainee tool kit no 1

\_scribe 100mm; hacsaw frame withblade 300mm ..no : 2

-Hsc drill bit 6 mm .3 mm

- round nose plier 150 m. Grimping tools ..- instrument equipment

3.2Digital multimeter ; megger 500v -.contactor 4 poles ;16A;240V;2 no ; timer

3.3 material :

-Push button green /red..

-indicator lamp with holder

- overload relay 0-15A;415v

-race ways 2-mwter .

-1,5 sqm copper cable as to 650V

- terminal connectoe 0 .

\_ wirie ferule ,connector ;cable blinding shapes; shaps button ,nylon cable assort size

-----  
\_design

|Logic input| output logic pin no|

A/|B |3 |6 |8 |11 |

|0 | 0 |gate 1|2|3|4

Condition gate ic

-----resistor design

Serie numbe|sketch ref|type of | symbo

□□□□□□□□□□■□□□□□□□□□□●

●□□□

-----  
-Pcb track design:

□□□□□□□□□□□□□□

□□□□□□□□□□□□□□

-Construct power control circuit scr:

PREPARE

-Halfwave: 240v,50 ; 24v..vdc

□□□|■□□□[

-Ac supply 415..dc control supplt .driver .dc motor ,dc generator 200v load ..200w

Serie number |load|armature voltage

Load volt |current motor speed in rpm

□□□□□□□□□□□□□□□□

SW1 S 3u v w

240v

□□□□□□□□□□□□□□□□7

Wiring diagram of dc driver

The panel board used fix panel meter and indicator front

1.identify and selec prepare range

\_make size |rate main | rate power kw

Switch mcb ,4n ,500w,

On Sat, 23 Mar 2024, 09:40 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Application :

Ref: letter number :2024/0322

-Saq id ref:201911130002

- Saq enquiry: 9370;

-Dhet: 2100002023812;

2004007064381

-----  
Enquiry No:.

-Name of institution: st peace college

-Date of application:01/03/2024

-Date of start :19/10/2019



-1.qualification: title engineering national diploma .award ..rd congo

Assessor moderator

Subject electrotechnology.

-2.qualification title :title engineering n diploma.

Student electrical engineering

\_3 qualification title : skill trade panel wiring i

Chieta ..C0700410101099 pratica seta electrical .

\_ start qualification award institution

Saqa work day 15 . Graduate criteria decision 15 day evaluation on pre work..registration

Policy le099

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Qual	qualification	level	nqf	min	repla
Id	title				cred

---

20420	national cert	lev 4	120		
	electrical eng				

---

20418	national cert	lev2	120		
	electrical eng				

---

48475	national cert	lev 6	120		
	electrical eng				

---

80160	national diplom	lev	360	I,II,III	
	electrical eng				

---

90674 nationa n diplomat studie eng

Nqf level 6

67043 | n diplomat | purpose

Id 67491| |

N3 to ;n1n2 ..subject pass

Electrotechnology. Orientation industrial

N4 |electrical engineering irregularities

subject recertification in progress marking quality councils insurance body dheth electrical trade

transcript record NLRD: saqa national record

Saqa ID 66881 transcript bachelor

15 days work topics

in nated practical theoretical framework: .award saqa

---

Ref;, Dheth: topic career subject

-businesses english : topic cvs. cover letter compaigny

-orientation industrial :

-supervision: planing

management supervisor

Hr communication .

Assessment lms :Learning dheth .completed form underpine poa poes learner:toic practical coverage

textbook explanation last papper

vs compaigny trade challenge viste trade practical irregularity subject

Material irregularity for practical class room space rental location accommodate space ..theoretical compaigny trade

-city power eskom vs trade seta psira ref city power work metering generetor

transmitter lighthing can not support practical visited vs dtic industrial manufacture mining

illegal manufacture component vs topics challenge class rental insurance workplace

\_1Purpose: operate electrical .wiring and control wiring and control switch

Explanation topics research n1.2.35.6 final research topics ..

Award police cat meeting requirements

On Tue, 27 Feb 2024, 09:59 tshingombe fiston, <[tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)> wrote:

Application

Ref: Applications letter number: 2023/1226

---

ADDRESS: PRIVATE BAG X 174, PRETORIA 0001  
123 FRANCIS BAARD STREET PRETORIA  
TEL: 0123235618

---

ENQUIRY NUMBER:

DHET:

DOCKET NUMBER: 2023/1226

INFORMATION MANAGEMENT SYSTEM

- INSTITUT COLLEGE NAME: ST PEACE COLLEGE

-ID: NUMBER: TIRCOG000910610

-REGISTRATION NUMBER: STUDENT -C070040101099

-SARS VAT NUMBER: 923228238

-MERSETA: 17\_QA/ACC/1311/17

-SAQA REGISTRAR STUDENT NUMBER: 210020223812, 2004007064382.

-email address: [tshingombekb@gmail.com](mailto:tshingombekb@gmail.com)

-Alternate email address: [tshingombefiston@gmail.com](mailto:tshingombefiston@gmail.com)

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APPEAL DECISION RESULT RELEASE:

APPLICATION NUMBER:

Saga: institute foreign .saga transcription meeting 71638 dry Congo requirements graduate award diploma knife .high certificate no meeting .leave school .expended assessments .exam d teat diploma .certificate professional .certificate informatics mathematic vs. offices ; result outcome primary status registration saga asset 09121 .saqa institute 30\_39 no assess policy.IE099 ,saqa id 67q0 certificate .n diplomat

-Qualification title national N diplomat engineering.

-nqf level:6 .

-date submitted to dheth: 1105/2023

-date process.

DHET

-Timetable /50111002

-N1: engineering studies

-ID: 2004007064381

-ID: 2100002023812

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Dear .mar minister of education duet and deputy member of duet .vet college examination directorate and authority competencies. Government's president

I' mar tshingombe tshitadi ;acknowledge student st peace college candidate examination career student follow course in duty of nated in rsa 2019 to 2024 , i 'm appear to your department government institution for allegation view no result of statement id candidat engineering n1.,n2, n,3,n4 ,n3 and n Examination national examination was not delivery in the time external assessments committed irregularities.

1.my motivation and disciplinary assessment submitted my portfolio on line portal duet release resultant statement and finalized award diplomat by examination committed irregularity November invalided subject n3 trade theory electricakbtranscript the result of assessment was note release reason irregularity n3.subject n4 .subject fail druiip result February 2022 .directorate assessment transcript material .statement affidavit submitted sty peace college registrar shalom technical and agric institute college no result outcome .after 15 days was result scaling n1.n2.n3but statement didn't come out not print out by registrations resentment inconvenient. Arbitrary irregularity on February I submitted topics saga

2. I received to duet committed assessment examinations irregularities the retain

, invalidated subject 23 February 2022 the time table of n3 subject administration exam with those subject trade. electrical trade theory .4 subject November 2023 examination rhea result statement for last examination was not print outcome n1.n2 submitted n3 last time table exam only last n4 exam statement print outcome and not time table for n6.,n5 received in examinations November suspension is 11 month for irregularity .follow vet guideline assessment. Exam over the date insurance body frameworks qualification and labor department if could claim no outcome in career portal was outcome 3.allegation result statement retain duet ;saga n diploma n diplomat application for n4.6 diplomat final was no granted n4.level 4 diploma ices years college in my portfolio submitted on line marked exam n5.n6.subject additional assessment information by institution is at ices.

Ref outcome saga result

16 Jan 2023 on line maraschino massage send submission number foreign institute inquiries 9370.

Foreign institutions inquiries 6594

Section 29(a) policy criteria saga knife amended march 2017 institute ...framework nqf foreign award must Saqa accepted only qualifications official examination body country...external examination based, 26 July

4. Allegation to qcto retain on; saturday 22 January 2022. ; With regard n certificate direction dhet education training (for n4\_n6 n diploma or umlauts n3 can not assist with qcto issued

Sat ..10 march 2031 .[certificate@qcto.org.za](mailto:certificate@qcto.org.za) answer soc please note that the qcto does not issue any of results

-lindiwe grace 28 may 2023 inquire to national and assessment college .i have copied our QA unit they will be able to rspond to accorngly regardc

Qcto khuluvhe labour market intelligences lmi esteemed stakeholder 21 aug 2023 was not grante

- i receiving Allegation to saqa retain on.10 march 2023 procedure for evaluatiin pro forma invoice .copy id passport.copy final award graduation certificate. Copy of completed transcript mark sheet academic record.proof payment if not meetings requirements can resubmitted again.non compliant; 27 july 2021 Final award school diploma degre certificate in 48h .

-that my requested letter to the authority minister for my result statement certificat over the date review n diploma 24 month.18 month nated examination to resolve problem after examination irregularities materiel that final result n4 and new re certificate body insurence investigation result center assessment outcome years icass total tvet for my institute st peace college institu and externsl certificate n1.n3 afric training institute and shalom technical collection print out was not in my application for

- Your sincerely.

Sign :Tshingombe Tshitadi

An.n3 .in the relevant specialization area communication nqf level 4 in language teaching ...theoretical knowl2 and practical skills required and learning of institution offering. To be award the award qualification learners are to choose complete .business studies 0.5 years business studies.

.N4 o.5 year's duration 60 cresits ...n5 (0.5 year duration) 60 credit .n6. 0.5 y

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