DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS: 25 **DURATION: 1 HOUR**

SUBJECT : Engineering Measurement - II (320056)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

(1) Write your enrollment number in the space provided in the question paper.
(2) All questions are compulsory.
(3) Draw neat sketches wherever necessary.
(4) Assume suitable additional data wherever necessary declaring it in your answer.

[Q.1] Answer any TEN of the following. **[10]**

(1) The unit of power is _____. (Watt, Newton, Kg)
(2) Voltmeter is always connected in _____. (Series, Parallel)
(3) Ammeter is always connected in _____.(Series, Parallel)
(4) The area of Gujarat map can be measure with _____ method. (Planimeter, Simpson's, Counting Square)
(5) 1 mt^2 = _____ cm^2 (10^4, 10^{-4},10^6)
(6) The formula for the volume of cylinder is _____. (πr^2h, πr^3h, πrh^2)
(7) 1 N = _____ dyne. (10^5, 10^{-5},10^8)
(8) 1 Joule = _____ ergs. (10^7, 10^{-7},10^{10})
(9) 1 H.P. = _____ Watt (748, 487, 784)
(10) Formula to calculate power is _____. (P=VI, P=IR, P=VR)
(11) The Simpson's method is applicable only when the nos. of divisions of the area is _____. (even, odd)
(12)The Graph of P→ W is _____. (Straight line, Curved)
(13) The unit of Co-efficient of Static friction is _____. (gm, Nt, no unit)

[Q.2] Answer any Five of the following. **[15]**

(1) List the apparatus you used in the experiment "Measurement of Friction".

(2) List the apparatus you used in the experiment "Measurement of Moment of Inertia".

(3) Define: Power, State the unit of Power. A rating of the bulb is 40W. What does it indicate.

(4) State the formula to calculate the Moment of Inertia & Simpson's Rule.

(5) List the apparatus you used in the experiment "Measurement of A.C. Power".

(6) Define: Static & Dynamic friction. Explain Limiting Frictional force.

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DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST – I EXAM APRIL-2009

TOTAL MARKS : 20 **DURATION : 1 HOURS**

SUBJECT : ELEMENTS OF CIVIL ENGINEERING (320007)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

(1) Write your enrollment number in the space provided in the question paper.
(2) All questions are compulsory.
(3) Draw neat sketches wherever necessary.
(4) Assume suitable additional data wherever necessary declaring it in your answer.

[Q.1] Attempt any TWO [10]

(a) Enlist instruments required for chain and tape survey with their uses.

(b) Draw a neat sketch of prismatic compass showing components parts.

(c) Explain step –by-step procedure of temporary adjustment of Dumpy level.

(d) Explain difference between Fore Bearing and Back Bearing.

(e) Give the test for checking the quality of Bricks.

(f) Give the list of at least ten materials used in civil Engineering field.

[Q.2] Workout internal angles of close traverse of compass survey from following data.

Station	Fore Bearing	Back Bearing	
A.	100˚ 00'	280˚ 00'	
B.	200˚ 00'	20˚ 00'	
C.	300˚ 00'	120˚ 00'	
D.	50˚ 00'	230˚ 00'	[5]

[Q.3] Following readings were taken on continuous falling ground with 4 m leveling staff. Calculate Reduce Level of all points and show arithmetic check.

The first reading was taken on bench mark of R.L. = 10.000 mt

1.000, 1.500, 2.000, 2.500, 3.000 and 3.500 mt. [5]

-------- END -------

DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS: 20 **DURATION: 1 HOUR**

SUBJECT : FUNDAMENTALS OF ELECTRICAL ENGG.(320004)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

(1) Write your enrollment number in the space provided in the question paper.
(2) Answer any **four** questions. All carry 05 marks.
(3) Draw neat sketches wherever necessary.
(4) Assume suitable additional data wherever necessary declaring it in your answer.

[Q.1] Define-RMS Value, Average Value, Frequency, Power and Reluctance.

[Q.2] State Faraday's laws of electromagnetic induction and define self and mutual induced emf.

[Q.3] Compare electric and magnetic circuit.

[Q.4] Draw the connection diagram of Ammeter, Voltmeter, Wattmeter and Energy meter with single phase supply and load.

[Q.5] Describe the working of CRO and its area of applications.

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DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS: 20 **DURATION: 1 HOUR**

SUBJECT : NON-CONVENTIONAL ENERGY SOURCES (320005)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

(1) Write your enrollment number in the space provided in the question paper.
(2) All questions are compulsory.
(3) Draw neat sketches wherever necessary.
(4) Assume suitable additional data wherever necessary declaring it in your answer.

[Q.1] Filling the Blanks **(Any FOUR)** **[4]**

(1) The _____ energy comes from the fusion of Hydrogen into Helium under high temperature and pressure. (Wind, Bio-Mass, Solar)
(2) _____ is used to measure beam radiation. (Pyrheliometers, Pyranometer, Pyre geometer)
(3) _____ Blades are made from sheet metal or aluminums. (Single, Multiple, Dutch Type)
(4) _____ is a process, by which green plants use solar energy to convert water, carbon dioxide and small amounts of minerals into high energy organic compounds. (Photosynthesis, Energy Plantation, Gasification)
(5) The amount of Solar energy received per unit time and per unit area is _____. (Solarconstant, Wind Speed, Solar Radiation)

[Q.2] Compare the use of conventional and Non-conventional energy sources. **[4]**

OR

Give the classification of the energy sources. Explain any two under each Classification.

[Q.3] Mention different types of Pyrheliometer and described any one of the giving neat sketch. **[4]**

OR

Explain Semi-conductor material and PN junction.

[Q.4] Explain the terms: (1) Power Co-efficient (PC) **[4]**
(2) Energy Pattern Factor (EPF)

OR

Briefly described the classification of the Wind mills and described any one of them.

[Q.5] What is Anaerobic Digestion? Explain the stages of Anaerobic Digestion. **[4]**

OR

Described the various problems encounters in the installation and operation of Bio-Gas plant.

---END---

DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS: 20 **DURATION: 1 HOUR**

SUBJECT : ELEMENTS OF MECHANICAL ENGG. (320003)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

(1) Write your enrollment number in the space provided in the question paper.
(2) Answer any **four** questions. All carry **05** marks.
(3) Draw neat sketches wherever necessary.
(4) Assume suitable additional data wherever necessary declaring it in your answer.

[Q:1] Define slip, state the effects of slip and also state the methods to reduce the slip.

[Q: 2] Define gear train, state the different types of gear trains and explain any one type of gear train with neat sketch.

[Q: 3] State the causes of accident in industries.

[Q: 4] Classify I.C Engines

[Q: 5] Explain working principle of 4-stroke petrol engine with neat sketches

---END---

DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS: 20 **DURATION: 1 HOUR**

SUBJECT : MECHANICAL DRAFTING (320008)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

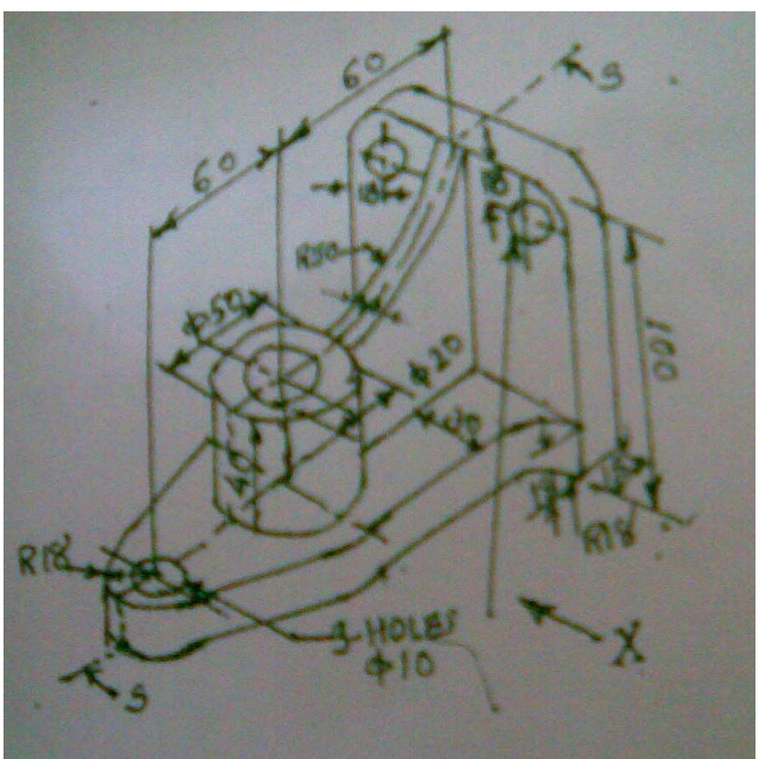
1. Write your enrollment number in the space provided in the question paper.
2. Answer **ALL** questions. Each carries **10** marks.
3. Draw neat sketches wherever necessary.
4. Assume suitable additional data wherever necessary declaring it in your answer.

[Q.1] For the pictorial view shown Draw the following views.
(a) Sectional front view looking from X
(b) Left side view (c) Bottom view

[Q 2] A hexagonal Pyramid side of the base 30mm and axis 60mm rests on its base on H.P such that one of the base edges perpendicular to V.P, It is cut by a section plane perpendicular to H,P and inclined at 45 to V.P and passing through the pyramid at a distance of 10mm from the axis.
a) Draw its sectional front view.
True Shape of the section

OR

[Q.2] A hexagonal pyramid of base of the side 30 and axis 70 is resting on one of its base edge on the H.P. This edge makes an angle of 30 to the V.P. and the face containing this edge makes an angle of 45 to the H.P. Draw its Projections.



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DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS: 20 **DURATION: 1 HOUR**

SUBJECT : Electronic Device & Circuits-I (320017)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

1. Write your enrollment number in the space provided in the question paper.
2. Answer **ALL** questions.
3. Draw neat sketches wherever necessary.
4. Assume suitable additional data wherever necessary declaring it in your answer.

[Q-1] Define the following terms. (4)

(a) Diffusion capacitance

(b) Drift Current

OR

[Q-1] Explain Zener effect in detail & draw Zener diode characteristics.

[Q-2] Draw the circuit diagram of Bridge rectifier & explain its working. (6)

OR

[Q-2] Explain requirement of filter. Discuss capacitor & inductor filter.

[Q-3] Explain construction & Operation of N-P-N transistor. (5)

OR

[Q-3] Write short note on any two.

(a) Tunnel diode

(b) Seven segment display

(c) Photo diode

[Q-4] Define α & β. Establish relation between them. (5)

OR

[Q-4] In a common emitter transistor stage, the output current is 5 mA for an input current of 100 μA. Determine α , β & $I_{CBO.}$

--- End---

DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS: 20 **DURATION: 1 HOUR**

SUBJECT : Programming in 'C' (320016)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

1. Write your enrollment number in the space provided in the question paper.
2. Answer **ALL** questions.
3. Draw neat sketches wherever necessary.
4. Assume suitable additional data wherever necessary declaring it in your answer.

Q-1 Evaluate following arithmetic expression (2)

(a) 40 / 3 % 5 + 4 * 8

(b) 30 / 4 * 4 – 20 % 6 + 17 / 2

Q-2 Answer following question(any one) (2)

(a) Explain Ternary Operator

(b) List Basic Data types available in 'c' along with their size & range

Q-3 Attempt any the following (6)

(a) Explain Decision making If Statement. List various forms of If..else.

(b) Explain for loop with example.

Q-4 Attempt any one (2)

(a) Write a 'c' program to check whether given Year is a Leap Year or not.

(b) Write a 'c' program to check whether given Number is Odd or Even.

Q-5 Attempt any two (8)

(a) Write a 'c' program of print Fibonacci series(1 1 2 3 5….n).

(b) Write a 'c' program to find out maximum out of three numbers.

(c) Write a 'c' program to find out Factorial of a given value.

---END---

DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS : 20 **DURATION : 1 HOURS**

SUBJECT : Electrical Circuits (320009)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

(1)Write your enrollment number in the space provided in the question paper.
(2) Answer any four questions.
(3)Draw neat sketches wherever necessary.
(4)Assume suitable additional data wherever necessary declaring it in your answer.

Q- 1 (a) Derive an expression for dynamically induced emf. (2)

(b) 240 V d.c. supply is given to a coil having resistance of 20 ohm and inductance of 24 H.Calculate current at 0.3 second after the supply is given. (2)

Q- 2 (a) State and Explain KCL and KVL. (2)

(b) Three resistances of 20 ohm,30 ohm & 50 ohm are connected in Star. Find their equivalent resistances in Delta connection. (2)

Q- 3 (a) Define following terms. (2)

(i) Active Element (ii) Network

(iii) Node (iv) Mesh

(b) A 100 V, 40 W lamp is to be used with 220 V supply ,What measures are to be taken to operate it safely with its full ratings. (2)

Q- 4 (a) Compare Magnetic circuit with Electric circuit. (2)

(b) A ring of 1m average dia. is made from iron of 15 cm^2 cross sectional area, 25 tonnes are wound over it , calculate value of current necessary to produce flux of 1.5 mWb. (2)

Q-5 (a) State & Explain Faraday's laws of Electromagnetic induction. (2)

(b) Derive an expression for equivalent resistance of three resistances connected in parallel. (2)

---END---

DR.B.B.A.GOVERNMENT POLYTECHNIC, KARAD (D.P.)
UNIT TEST –I EXAM APRIL-2009

TOTAL MARKS : 20 **DURATION : 1 HOURS**

SUBJECT : Civil Engineering Drawing (320006)

ENROLMENT NO._____ **SUPERVISOR'S SIGNATURE:_____**

Instructions:

(1)Write your enrollment number in the space provided in the question paper.
(2) Answer all questions.
(3)Draw neat sketches wherever necessary.
(4)Assume suitable additional data wherever necessary declaring it in your answer.

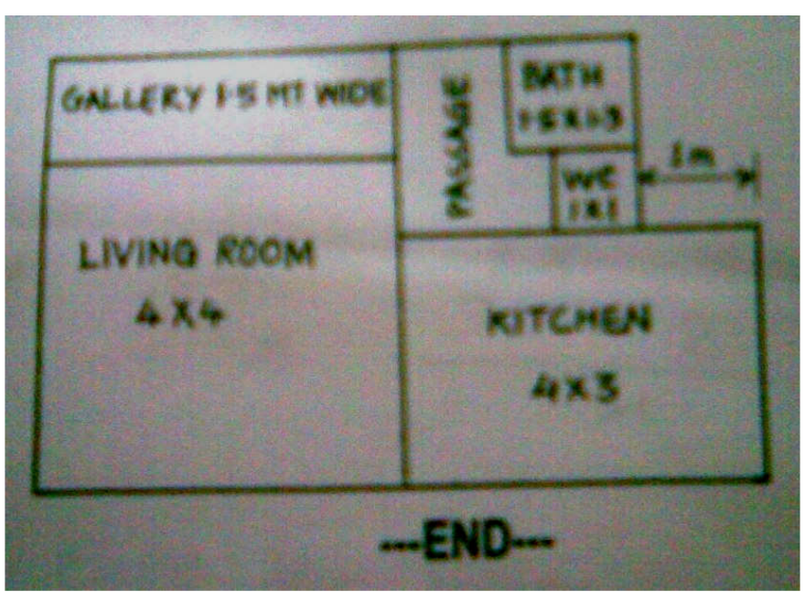
{Q.1] Draw the Symbols (Any Two) (2)
(a) Wood
(b) Single Leaf , Double Swing Door
(c) Sprinkler
(d) Stair

[Q.2] Write Short Names (Any Four) (2)
(a) Asbestos
(b) Brick work
(c) Man Hole
(d) Railways
(e) Water Closet
(f) Full Supply Level

[Q.3] Show the Position of the views in the Combination of Ist and 3rd angle projection method. (4)

[Q.4] List down the Principles of Planning. (4)

[Q.5] Draw the Detail Plan from the given Line Plan . (8)
(Wall Thickness : 20 cm, Scale 1:50, Assume other required data)



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Dr. B.B.A. Govt. Polytechnic, Karad (P.D.)

Mid-semister Exam - (April - 2009).

Attempt Any five of the following (each for 4 marks)

Date:- 26/04/2009.

Max^m. marks = 20.

Time - 11.30 - 12.30 noon

Q.1 If $f(x) = \frac{1}{1+x}$ then prove that

$f(x) + f(\frac{1}{x}) = 1.$

Q.2:- find $\lim_{x \to 2} \frac{x^3 - x^2 - 5x + 6}{x^2 - 5x + 6}.$

Q.3:- find $\lim_{x \to \infty} (\sqrt{x^2+x+1} - x)$

Q.4:- find $\lim_{x \to 0} \frac{3^{2x} - 2^{3x}}{x}.$

Q5:- Differentiate by using defination

$f(x) = \sqrt{x}.$

Q.6:- If $y = \log(\sec x + \tan x)$ find $\frac{dy}{dx}.$

Q.7:- find $\frac{dy}{dx}$ from $x^3 + y^3 = 3xy.$

8:- find $\frac{dy}{dx}$ if $y = x^x + (\sin x)^{\log x}.$

---END---

DR B.B.A GOVERNMENT POLYTECHNIC, KARAD (DP)

2ND SEMESTER

MID-SEMESTER EXAMINATION

APPLIED SCIENCE-II (APPLIED CHEMISTRY)

DURATION: 1 HR **MAX MARKS: 20**

Q No. 1 Define the following terms. ANY 4…….. (4 Marks)

(a) Ionization Energy (b) Atomic Orbital (c) Scale and Sludge (d) Flash point and fire point (e) Temporary and Permanent Hardness of water (f) Viscosity Index (g) Electrolysis

Q No. 2 Fill in the blanks. Any 6…… (6 Marks)

(a) _____ + _____ ------→ Nylon 6, 6.

(b) _____ + _____ ------→ Epoxy Resin

(c)_____ polymer is used as cation exchanger in water purification appliances like aqua-guard.

(d) _____ polymer is added to impart wet strength, stabilization, folding endurance and bursting strength to paper pulp in paper industry.

(e) Silicone Rubbers remain _____ at very low temperature and ____ at very high temperature.

(f) _____ synthetic rubber cannot be vulcanized using Sulphur.

(g) Liquid Silicone resins are used as _____and _____ fluids.

(h) _____ is an example of thermosetting and cross-linked polymer.

Q No. 3 Answer the following questions…… (3 Marks)

(a) Explain Caustic Embrittlement in Boilers OR Explain Electro Platting?

(b) Explain Vulcanization of Rubber OR Zeolite/Permutit process giving chemical reactions?

Q No. 4 Answer the following questions…… (2 Marks)

(a) Explain the construction and working of an Electro Chemical Cell OR Standard Hydrogen Electrode?

(b) Explain the process of Galvanization OR Ion Exchange process and regeneration of acidic-basic resins giving chemical reactions?

---END---