



AL-JUMAN-I-ISLAM'S

**KALSEKAR TECHNICAL CAMPUS, NEW PANVEL**

Approved by : All India Council for Technical Education, Council of Architecture, Pharmacy Council of India New Delhi,  
Recognised by : Directorate of Technical Education, Govt. of Maharashtra, Affiliated to : University of Mumbai.

- SCHOOL OF ENGINEERING & TECHNOLOGY
- SCHOOL OF PHARMACY
- SCHOOL OF ARCHITECTURE

**DEPARTMENT OF CIVIL ENGINEERING**

REV:00

**QUESTION PAPER CLASS TEST 01/**

EXM-04(b)

CLASS:- SE-I<sup>st</sup> Shift

SEM:- III

SUBJECT:-Engineering Geology

DATE:-~~22~~ / 08 / 2017

DURATION:- 60 min.

MARKS:- 20

**CLASS TEST 01**

**Q.01 Attempt any Five: (10 Marks)**

	marks	CO
a) Name two non-silicate minerals and their use.	02	CO1
b) What are divergent Plate Boundaries and where do they occur on the earth?	02	CO1
c) What is chemical weathering?	02	CO1
d) Give the layered structure of the earth.	02	CO1
e) What are different types of volcanic eruption give examples.	02	CO6
f) Differentiate between Pot hole and Cirque.	02	CO1

**Q.02 Attempt any One: (05 Marks)**

a) Give textures of Igneous rocks and comment on the suitability of Igneous rocks as foundation rock.	05	CO2
b) Describe various parts of a fault and explain Normal fault in detail.	05	CO3

**Q.03 Attempt any One: (05 Marks)**

a) Give classification of Igneous rocks and comment on their suitability as construction material.	05	CO2
b) Define dip and strike and explain Reverse fault in detail.	05	CO3



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**DEPARTMENT OF CIVIL ENGINEERING**

**QUESTION PAPER CLASS TEST 01**

REV:00

EXM-04(a)

CLASS:- SE CE - 1

SEM:- III

SUBJECT:- Surveying – I

DATE:- 22 / 08 / 2017

DURATION:- 60 min.

MARKS:- 20

**Q.01 Attempt any 5: (10 Marks)**

	marks	CO
a) State with neat sketches principles of surveying.	02	1
b) Differentiate between prismatic and surveyor's compass.	02	2
c) Discuss the various obstacles in chain surveying.	02	1
d) What do you understand by reciprocal levelling?	02	3
e) What is local attraction? List the two methods of correcting bearing for local attraction	02	2
f) Compare HI method and Rise and fall method	02	3

**Q.02 Attempt any 2: (10 Marks)**

a)	The length of a line measured by means of a 20 m chain was found to be 610.2 m, known to be 612.0 m. What was the actual length of the chain?	05	1
b)	The bearings of the lines of an open traverse was given below. Find the local attraction, if any, at the stations and correct the bearings. AB: $36^{\circ}10'$ BA: $216^{\circ}10'$ BC: $109^{\circ}20'$ CB: $288^{\circ}40'$ CD: $159^{\circ}30'$ DC: $341^{\circ}10'$ DA: $270^{\circ}20'$ AD: $89^{\circ}20'$	05	2
c)	The following consecutive readings were taken with a levelling staff with intervals of 20 m  2.375, 1.730, 0.615, 3.450, 2.835, 2.070, 1.835, 0.985, 0.435, 1.630, 2.255 and 3.630 m.  The instrument was shifted after the fourth and eight reading. The first reading was taken on a benchmark of RL 101.200 m. Find the RL of all points and show usual checks.	05	3



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**DEPARTMENT OF CIVIL ENGINEERING**

**QUESTION PAPER CLASS TEST - 01**

EXM-04(b)

REV:00

CLASS:- S. E. CE 1

SEM:- III

SUBJECT:- STRENGTH OF MATERIALS

DATE:- 23 / 08 / 2017

DURATION:- 60 min.

MARKS:- 20

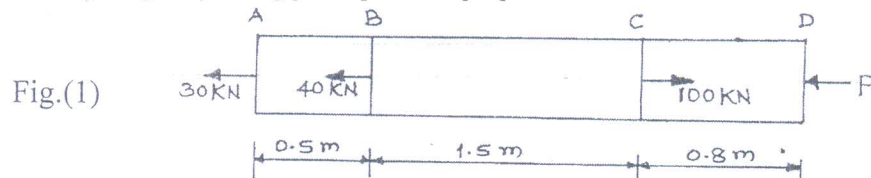
**Q.01 Attempt any Five: (10 Marks)**

marks CO

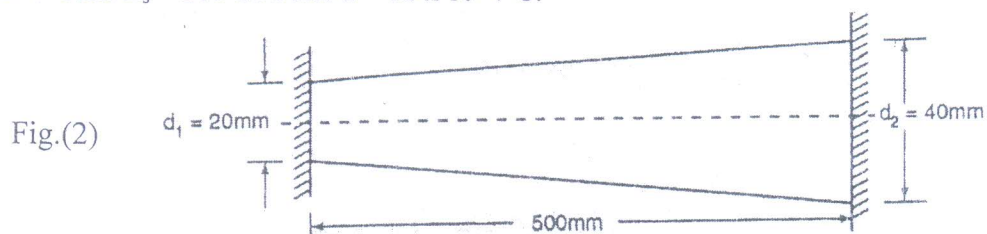
a)	Define Hardness of a material and mention the various tests to determine hardness of a material.	02	CO1
b)	A hollow steel column of external diameter 250 mm has to support an axial load of 2000 kN. If the ultimate stress for the steel column is $480 \text{ N/mm}^2$ . Find the internal diameter of the column, allowing a load factor of 4.	02	CO1
c)	Write the expressions for E & G and E, G, K elastic constants.	02	CO1
d)	Explain Uniformly Distributed Load with neat sketch.	02	CO2
e)	A simply supported beam of length 'L' and supported at A & B, which carries a point load 'W' at its mid span. Draw SFD and BMD by using standard formulae of it.	02	CO2
f)	Enlist formulae for the relationships between rate of loading, shear force and bending moment at a c/s of a beam .	02	CO2

**Q.02 Attempt any One: (05 Marks)**

a)	A steel bar having cross-sectional area $1100 \text{ mm}^2$ is subjected to axial forces as shown in fig.(1). Find the change in the bar length by using principle of superposition. $E = 2 \times 10^5 \text{ N/mm}^2$ .	05	CO1
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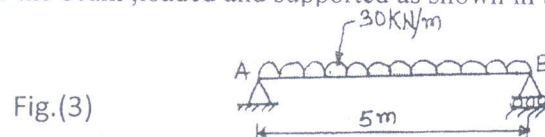
b)	The steel bar of uniformly varying diameter shown in fig.(2) is held between two unyielding supports at room temperature. What is the maximum stress induced in the bar, if temperature rises by $30^\circ\text{C}$ ? Take $E_s = 200 \text{ GPa}$ and $\alpha = 12 \times 10^{-6}/^\circ\text{C}$ .	05	CO1
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**Q.03 Attempt any One: (05 Marks)**

a)	A beam ABC is hinged at 'A' and placed on rollers at 'B'. The distance between the two supports AB is 7 m and the overhang BC is 3 m . The beam carries a udl of $10 \text{ kN/m}$ over a span AB along with a point load of $15 \text{ kN}$ at 'C'. Draw SF & BM diagrams.	05	CO2
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b)	Draw SFD and BMD for the beam ,loaded and supported as shown in below figure (3).	05	CO2
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**School of Engineering & Technology**

Subject: **FLUID MECHANICS- I**

Date: 23/08/17

Marks: **20**

Duration: **1Hr/s**

Class: **S.E. Shift-I**

UT-I

Branch: **Civil**

- Instructions:** 1) Question No. 1 is **Compulsory**.  
2) Assume any **suitable data** but state the same.  
3) Illustrate answers with **sketches** wherever necessary.

Q. No.	Questions	CO addressed	Marks
1	Attempt <b>any five</b> of the following		10
a	A diver is working at a depth of 20m below the surface of sea water ( sp. Wt = 10kN/M <sup>3</sup> ). Calculate pressure intensity at this depth.	CO2	
b	Define the term total pressure.	CO2	
c	An oil of specific gravity 0.85 is contained in a vessel. At a point the height of oil is 35 m. Find the corresponding height of water at the point.	CO2	
d	Define capillarity.	CO1	
e	If certain liquid has viscosity 4.9 X 10 <sup>-4</sup> kg(f)-sec/m <sup>2</sup> and kinematic viscosity 3.49 X 10 <sup>-6</sup> m <sup>2</sup> /sec, what is its mass density.	CO1	
f	Define mass density & specific weight.	CO1	
g	A rectangular plate of size 4m X 6m is held vertical in water in such a way that its CG is 7m below FSL of water. Calculate total pressure on plate.	CO2	
2	Attempt <b>Any one</b> of the following :		(05)
a	State & prove Pascal's law.	CO2	
b	Calculate the pressure at point 'A'. (Refer Fig. No.1)	CO2	
3	Attempt <b>Any one</b> of the following :		(05)
a	Determine total pressure & center of pressure. (Refer Fig. No.2)	CO2	
b	A plate 0.0254 mm distant from a fixed plate, moves at 61 cm/sec & requires a force of 0.2 kg(f)/m <sup>2</sup> to maintain this speed. Determine the dynamic viscosity of fluid between the plates.	CO1	
	<p align="center">Fig. No.1</p>	<p align="center">Fig. No.2</p>	<p><i>All the Best</i> <i>Prof. D.S.Shah</i></p>



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**DEPARTMENT OF: CIVIL ENGINEERING**

CLASS:- **SE.CE-1<sup>ST</sup> Shift**

SEM:-**III**

SUBJECT:-**APPLIED MATHS-III**

DATE:- **/08/2017**

DURATION:-**1 HOUR**

MARKS:- **20**

**CLASS TEST-01**

Q1: Attempt any two.

Marks

CO

a) Find the coefficient of correlation from following data:

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

04

CO1

b) Fit a second degree curve for the following data.

x	0	1	2	3	4
y	1	1.8	1.3	2.5	6.3

04

CO1

c) Obtain the line of regression of Y on X from following data.

X	70	72	74	76	78	80
Y	163	170	179	188	196	220

04

CO1

Q2: a) Find an analytic function whose real part is  $\frac{\sin 2x}{\cosh 2y + \cos 2x}$

OR

a) Find a bilinear transformation which maps the point  
 $z = 1, i, -1$  onto  $w = i, 0, -i$

06

CO2

b) Evaluate the integral

$$I = \int_0^{1+i} (x - y + i x^2) dz \quad \text{along line from } z = 0 \text{ to } z = 1 + i$$

OR

06

CO3

c) Evaluate  $\int_c \frac{\sin^6 z}{(z - \frac{\pi}{6})^3} dz$  where  $c$  is circle  $|z| = 1$



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**DEPARTMENT OF: CIVIL ENGINEERING**

CLASS:- SE.CE-2<sup>nd</sup> Shift

SEM:-III

SUBJECT:-APPLIED MATHS-III

DATE:-

DURATION:-1 HOUR

MARKS:- 20

**CLASS TEST-01**

Q1: Attempt any two.

Marks

CO

a) Find the coefficient of correlation from following data:

X	30	33	25	10	33	75	40	85	90	95
Y	68	65	80	85	70	30	55	18	15	10

04

CO1

b) If the tangent of the angle made by the line of regression of y on x is  $0.6$  and

04

CO1

and  $\sigma_y = 2\sigma_x$ , find the coefficient of correlation between x and y.

c) Determine the constants  $a, b, c, d$  if

$f(z) = x^2 + 2axy + by^2 + i(cx^2 + 2dxy + y^2)$  is analytic.

04

CO2

Q2: a) Define analytic function and find it if its real part is  $\cos x \cos y$ .

OR

a) Find the image of rectangular region bounded by

$x = 0, x = 3, y = 0, y = 2$  under the transformation  $w = z + 1 + i$ .

Draw the rough sketches.

06

CO2

b) Evaluate  $\int_{1-i}^{2+i} (2x + iy + 1) dz$  along  $x = t + 1, y = 2t^2 - 1$ .

OR

b) Show that  $\int_C \log z dz = 2\pi i$ , where C is the unit circle in z plane.

06

CO3

\*\*\*\*\* All the Best \*\*\*\*\*





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REV:00	<b>QUESTION PAPER CLASS TEST 01</b>	EXM-04(b)	
CLASS:- <u>SE CE II</u>		SEM:- <u>III</u>	
SUBJECT:- <u>FM-I</u>		DATE:- <u>XX / XX / XXXX</u>	
DURATION:- <u>60 min.</u>		MARKS:- <u>20</u>	
<b><u>CLASS TEST 01</u></b>			
<b>Q.01 Attempt any Five: (10 Marks)</b>		marks	CO
a)	Define specific weight and specific gravity.	02	CO1
b)	Explain vapour pressure and cavitation?	02	CO1
c)	Define absolute pressure, gauge pressure and vacuum pressure with a neat sketch.	02	CO2
d)	State Newton's law of viscosity. Classify fluids according to this law.	02	CO1
e)	Classify different types of manometers.	02	CO2
f)	Define total pressure and centre of pressure	02	CO2

<b>Q.02 Attempt any One: (05 Marks)</b>		
a)	One litre of crude oil weighs 9.6 N. Calculate its specific weight, density and specific gravity.	05 CO1
b)	The velocity distribution for flow over a flat plate is given by $u = 1.5y - y^{3/2}$ , where $u$ is the velocity in metre per second at a distance $y$ metre above the plate. Determine the shear stress at $y = 9$ cm. Assume dynamic viscosity as 8 poise.	05 CO1
<b>Q.03 Attempt any One: (05 Marks)</b>		
a)	State and prove Pascal's law.	05 CO2
b)	A left leg of U-tube manometer is connected to pipeline conveying water, the level of mercury in the leg being 0.6 m below the centre of pipeline, and right leg is open to the atmosphere. The level of mercury in right leg is 0.45 m above that in the left leg and the space above mercury in right leg contains Benzene (sp. Gr. 0.88) to a height of 0.3m. Find the pressure in the pipe.	05 CO2

-----END-----



REV:00

**QUESTION PAPER CLASS TEST 01**

EXM-04(a)

CLASS:- **S.E. CIVIL SHIFT II**

SEM:- III

SUBJECT:- **SURVEYING - I**

DATE:- **22/08 / 2017**

DURATION:- **60 min. ( 12 to 1 pm)**

MARKS:- **20**

**Q.01 (10 Marks)**

marks

- a) Point out the difference between Plan and Map. **02**
- b) Explain the procedure of Indirect Ranging with a neat sketch. **02**
- c) Differentiate between : Prismatic Compass & Surveyors Compass (4 points each) **02**
- d) Define : i ) Surveying ii ) Fore bearing and Back bearing of a line. **02**
- e) If  $\theta$  is the WCB of a line, what would be its Quadrantal bearing in all four quadrants ? **02**

**Q.02 (10 Marks)**

The bearings of the sides of a closed traverse ABCDEA are as follows. Draw the traverse, Compute all the Included angles & apply the necessary check. **10**

Side	Fore bearing	Back Bearing
AB	$107^{\circ} 15'$	$287^{\circ} 15'$
BC	$22^{\circ} 0'$	$202^{\circ} 0'$
CD	$281^{\circ} 30'$	$101^{\circ} 30'$
DE	$181^{\circ} 15'$	$1^{\circ} 15'$
EA	$124^{\circ} 45'$	$304^{\circ} 45'$



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### QUESTION PAPER CLASS TEST 01

EXM-04(b)

REV:00

CLASS:- SE-II<sup>nd</sup> Shift

SEM:- III

SUBJECT:-Engineering Geology

DATE:- 22/08/2017

DURATION:- 60 min.

MARKS:- 20

#### CLASS TEST 01

Q.01 Attempt any Five: (10 Marks)

marks	CO
02	CO2
02	CO1
02	CO1
02	CO1
02	CO6
02	CO2

a) Name two Silicate minerals and their use.

b) What are convergent Plate Boundaries and where do they occur on the earth?

c) Differentiate between mechanical and chemical weathering.

d) Define Lithosphere and give its thickness.

e) What are different types of volcanic Materials?

f) What is Yardang?

Q.02 Attempt any One: (05 Marks)

a) Describe some structures of the rocks form by magma and comment on their suitability as foundation rocks.

b) Describe various faults on the basis of apparent movement of the blocks.

Q.03 Attempt any One: (05 Marks)

a) Describe various forms of the Igneous rocks and comment on their suitability as construction material.

b) Draw a neat sketch to show various parts of a fault and explain Strike-slip fault.



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**QUESTION PAPER CLASS TEST 01**

REV:00	EXM-04(a)
CLASS:- SE (CIVIL): SHIFT 2	SEM:- III
SUBJECT:- Strength of Materials	DATE:- 23 / 08 / 2017
DURATION:- 60 min.	MARKS:- 20

**Q.01 Attempt any ONE: (08 Marks)**

	Marks	CO
a) Derive an expression for the elongation of a solid circular tapering bar.	08	CO1
b) A 2 m long steel bar has a uniform diameter of 45 mm for a length of 1 m, from one end. For the next 0.5 m length, diameter decreases uniformly to (d) mm. For the remaining length, the diameter remains same (= d mm). When a load of 160 kN is applied, the observed elongation is 2.45 mm. Find the diameter (d). For steel, $E = 200 \text{ kN/mm}^2$ .	08	CO1
c) Write a detailed note on stress-strain curve of Mild Steel specimen, tested under UTM.	08	CO1

**Q.02 Attempt any ONE: (12 Marks)**

a) The vertical rods, one of steel & the other of copper is each rigidly fixed at top. They are 500 mm apart. Dia of each rod = 22 mm, length of each rod = 4.1 m. A cross bar of negligible weight fixed at the lower end, carries a load of 5100 N such that the cross bar remains horizontal, even after loading. Find the stresses in each rod & the load position on the bar. $E_s = 2 \times 10^5 \text{ MPa}$ & $E_c = 1 \times 10^5 \text{ MPa}$ .	12	CO1
b) A compound tube consists of a steel tube of 140 mm internal diameter & 160 mm external dia. and an outer brass tube of 165 mm internal dia & 185 mm external dia. Both the tubes are of same length. The compound tube carries an axial load of 850 kN. Find the stresses & the load carried by each tube. Also, find the amount by which the tube shortens. Length of each tube = 145 mm. $E_s = 2 \times 10^5 \text{ MPa}$ and $E_b = 1 \times 10^5 \text{ MPa}$ .	12	CO1
c) A tensile test conducted on mild steel gives: Steel rod dia. = 30 mm, Gauge length = 200 mm, Elongation at a load of 110 kN = 0.142 mm, Load at elastic limit = 240 kN, Maximum load = 370 kN, Total extension = 60 mm, Rod dia. at the failure = 22.50 mm. Calculate: Young's modulus, stress at elastic limit, percentage elongation, percentage decrease in area.	12	CO1