K. J. Somaiya Institute of Engineering and Information Technology
Sion, Mumbai - 400022
NAAC Accredited Institute with 'A' Grade
NBA Accredited 3 Programs
(Computer Engineering, Electronics & Telecommunication Engineering and Electronics Engineering) Permanently Affiliated to University of Mumbai

EXAMINATION TIME TABLE (JANUARY 2021)

F.E.(Sem II) (ALL BRANCHES)(REV.-2016) (Choice Based)

Days and Dates	Time	Paper Code	Paper
Friday, January 08, 2021	03.30 p.m to 05.30 p.m.	FEC201	Applied Mathematics – II
Monday, January 11, 2021	03.30 p.m to 05.00 p.m.	FEC202	Applied Physics – II
Wednesday, January 13, 2021	03.30 p.m to 05.00 p.m.	FEC203	Applied Chemistry- II
Friday, January 15, 2021	03.30 p.m to 05.30 p.m.	FEC204	Engineering Drawing
Monday, January 18, 2021	03.30 p.m to 05.30 p.m.	FEC205	Structured Programming Approach
Wednesday, January 20, 2021	03.30 p.m to 04.30 p.m.	FEC206	Communication Skills

Important Note: ● Change if any, in the time table shall be communicated on the college web site.

Mumbai   Principal
20th December, 2020

University of Mumbai
Examination 2020
Program: First year Engineering
Curriculum Scheme: Rev2016
Examination: First Year Semester II
Course Code: FEC201 and Course Name: Applied Mathematics II

Time: 1 hour   Max. Marks: 50

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For the students:- All the Questions are compulsory and carry equal marks .

Q1.	If $\beta(n,3) = \frac{1}{60}$ and n is a positive integer. Find n
Option A:	0
Option B:	4
Option C:	7
Option D:	6
Q2.	The particular integral of $(D^2 - 4)y = \sin x$
Option A:	1/5 sin x
Option B:	1/5 cos x
Option C:	-1/5 sin x
Option D:	1/4 sin x
Q3.	Find the total length of the curve $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$
Option A:	8a
Option B:	6a
Option C:	4a
Option D:	3a
Q4.	Integrating factor of the differential equation $(4xy + 3y^2 - x)dx + x(x+2y)dy = 0$
Option A:	X^2
Option B:	X^3
Option C:	$-x^2$
Option D:	Y^2
Q5.	Solution of $(D^4 + 4)y = 0$
Option A:	$y = e^x(c_1 \cos x + c_2\sin x) + e^{-x}(c_3 \cos x + c_4 \sin x)$
Option B:	$y = e^x(c_1 \cos x - c_2\sin x) + e^x(c_3 \cos x - c_4 \sin x)$
Option C:	$y = e^x(c_1 \cos x - c_2\sin x) + e^x(c_3 \cos x + c_4 \sin x)$
Option D:	$y = e^x(c_1 \cos x + c_2\sin x) - e^x(c_3 \cos x + c_4 \sin x)$

Q6.	$\int\limits_{0}^{1} (x \log \log x)^4 \, dx =$
Option A:	$120/5^5$
Option B:	$60/5^5$
Option C:	$24/5^5$
Option D:	$6/5^5$
Q7.	Evaluate $\int\limits_{0}^{\frac{\pi}{2}} cos^2\theta \, d\theta =$
Option A:	5π
Option B:	-5π
Option C:	$5\pi/128$
Option D:	$5\pi/256$
Q8.	The Integrating Factor of $y \log y \, dx + (x - \log y) dy = 0$ is
Option A:	$2 \log y$
Option B:	$-\frac{1}{2}(\log y)^2$
Option C:	$\frac{1}{y}$
Option D:	$-2 \log y$
Q9.	The value of $\int\limits_{0}^{1}\int\limits_{0}^{1} x^2 y^2 \, dx \, dy$
Option A:	1/6
Option B:	1/9
Option C:	-1/6
Option D:	-1/9
Q10.	The area bounded by the curve $y^2 = 4x$ and the ordinate x = 1
Option A:	8
Option B:	-8/3
Option C:	8/3
Option D:	4/3
Q11.	Using Runge Kutta fourth order method, value of y(0.2), $\frac{dy}{dx}$ =x+y² given y(0) =1
Option A:	1.11525
Option B:	1.5678
Option C:	1.2736
Option D:	1.6736
Q12.	By using Eulers method find $\frac{dy}{dx} = 1 + xy$ find y(0.5) given y(0) =1
Option A:	1.3353
Option B:	1.5
Option C:	1.4326

Option D:	1.4005
Q13.	Duplication formula is
Option A:	$\Gamma\, m\, \Gamma(m+1/2) = \dfrac{\sqrt{\pi}\, \Gamma(m)}{2^{2m-1}}\, \Gamma(\,2m)$
Option B:	$\Gamma\, m\, \Gamma(m-1/2) = \dfrac{\sqrt{\pi}\, \Gamma(m)}{2^{2m-1}}\, \Gamma(\,2m)$
Option C:	$\Gamma\, m\, \Gamma(m+1/2) = \dfrac{\sqrt{\pi}}{2^{2m-1}}\, \Gamma(\,2m)$
Option D:	$\Gamma(\,2m)\, \Gamma(m-1/2) = \dfrac{\sqrt{\pi}\, \Gamma(m)}{2^{2m-1}}$
Q14.	Find the area of the region bounded by $y = x^2$ and $y = x$
Option A:	$\dfrac{1}{6}$
Option B:	$\dfrac{1}{4}$
Option C:	$\dfrac{1}{7}$
Option D:	$\dfrac{1}{2}$
Q15.	The necessary and sufficient condition for a differential equation $M\,dx + N\,dy = 0$ to be an exact differential equation, is
Option A:	$\dfrac{\partial M}{\partial y} = \dfrac{\partial N}{\partial x}$
Option B:	$\dfrac{\partial M}{\partial x} = -\dfrac{\partial N}{\partial x}$
Option C:	$\dfrac{\partial M}{\partial x} = \dfrac{\partial N}{\partial y}$
Option D:	$\dfrac{\partial N}{\partial x} = \dfrac{\partial M}{\partial y}$
Q16.	If $\dfrac{dy}{dx} = x^2 y - 1$ with $x_0 = 0$, $y_0 = 1$ find first three terms of Taylors series for y
Option A:	$1 + x + x^2 \,\cdots\cdots$
Option B:	$1 + x + x^2 \,\cdots\cdots$
Option C:	$1 + x + \dfrac{x^3}{3} \,\ldots.$
Option D:	$1 - x + \dfrac{x^3}{3} \,\ldots\ldots.$
Q17.	Express $\int\limits_{-1}^{1} (1 + x)^m (1 - x)^n\, dx$ as a beta function
Option A:	$\beta\,(m,n)$
Option B:	$\beta\,(m+1,n)$
Option C:	$2^m \beta\,(m+1,n+1)$
Option D:	$2^{m+n+1}\beta\,(m+1,n+1)$

Q18.	$\int_0^1 \int_0^1 \int_0^1 xyz \, dx \, dy \, dz=$
Option A:	$\dfrac{7}{8}$
Option B:	$\dfrac{5}{8}$
Option C:	$\dfrac{3}{8}$
Option D:	$\dfrac{1}{8}$
Q19.	Find the length of the curve $x = \dfrac{y^3}{3} + \dfrac{1}{4y}$ from y =1 and y =2
Option A:	59
Option B:	$\dfrac{59}{24}$
Option C:	$\dfrac{59}{-24}$
Option D:	24/59
Q20.	X : 0.0 0.5 1.0 1.5 2.0 2.5 e^x : 1.0 1.65 2.72 4.48 7.39 12.18 evaluate $\int_0^{2.5} e^x \, dx$ By trapezoidal rule
Option A:	12.415
Option B:	11.415
Option C:	-11.415
Option D:	-12.415
Q21.	Solve $(x+2y^2)dy = y \, dx$
Option A:	x= y +c
Option B:	y =x +c
Option C:	$\dfrac{x}{y} = 2y + c$
Option D:	x=y²+c

Q22.	Using Simpsons 1/3 rule find $\int_{0}^{6} \frac{1}{1+x} dx$
Option A:	1.9588
Option B:	2.9588
Option C:	-2.9588
Option D:	3.9588
Q23.	The integrating factor (I.F.) of (xy sin xy + cos xy)ydx +(xysin xy − cos xy)xdy =0
Option A:	$I.F = e^y$
Option B:	$I.F = e^y$
Option C:	I.F = 2xy cosxy
Option D:	$I.F = \dfrac{1}{2xy\cos\cos xy}$
Q24.	$(D^2 -1)y = \sec hx$ by using method of variation of parameters the value of W =
Option A:	3
Option B:	-2
Option C:	1
Option D:	-1
Q25.	While applying simpsons 3/8 rule the last ordinate should be multiple of
Option A:	2
Option B:	5
Option C:	3
Option D:	7

University of Mumbai
Examination 2020

Program: First Year Engineering
Curriculum Scheme: Rev2016
Examination: First Year Semester II
Course Code: FEC201 and Course Name: Applied mathematics II

Time: 1 hour   Max. Marks: 50

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Q25.	C

Question Number	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	B
Q2.	C
Q3.	B
Q4	A
Q5	A
Q6	C
Q7	D
Q8.	C
Q9.	B
Q10.	C
Q11.	C
Q12.	B
Q13.	C
Q14.	A
Q15.	A
Q16.	D
Q17.	D
Q18.	D
Q19.	B
Q20.	B
Q21.	C
Q22.	A
Q23.	D
Q24.	B

Program: First Year Engineering
Curriculum Scheme: Rev 2016
Examination: First Year Semester: II
Course Code: FEC202 and Course Name: APPLIED PHYSICS II

Time: $1\frac{1}{2}$ Hours

Max. Marks: 60

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	In Newton's rings, for a reflected system the radii of the dark rings are proportional to
Option A:	square root of odd numbers
Option B:	square root of natural numbers
Option C:	square root of even numbers
Option D:	square root of prime numbers
2.	Find the angle of the wedge for a thin glass wedge of refractive index 1.52. The fringe spacing is 1 mm and wavelength of light used is 5893 Å.
Option A:	1.94×10^{-4} radian
Option B:	1.94×10^{-3} radian
Option C:	1.94×10^{-2} radian
Option D:	1.94×10^{-1} radian
3.	The condition for constructive interference is path difference should be equal to
Option A:	odd integral multiple of wavelength
Option B:	integral multiple of wavelength
Option C:	odd integral multiple of half wavelength
Option D:	integral multiple of half wavelength
4.	The penetration of light waves into the regions of geometrical shadow is
Option A:	interference
Option B:	diffraction
Option C:	polarization
Option D:	dispersion
5.	In plane transmission grating, the angle of diffraction for second order principal maximum for the wavelength 5×10^{-5} cm is 30^0. The number of lines per cm on the grating surface will be
Option A:	3000
Option B:	2000
Option C:	4000
Option D:	5000

6.	Condition for population inversion in LASER is
Option A:	N1 > N2
Option B:	N1 < N2
Option C:	N1 ≤ N2
Option D:	N1 ≥ N2
7.	Which type does Nd-YAG laser belong to?
Option A:	Liquid laser
Option B:	Gas laser
Option C:	Semiconductor laser
Option D:	Solid state laser
8.	The numerical aperture of a fiber with core refractive index $n_1 = 1.61$ and cladding index $n_2 = 1.55$ is
Option A:	0.235
Option B:	0.435
Option C:	0.123
Option D:	0.534
9.	The principle of operation of an optical fiber is _____
Option A:	Tyndal effect
Option B:	reflection
Option C:	photoelectric effect
Option D:	total internal reflection
10.	The trajectory of electron in transverse electric field is
Option A:	circular
Option B:	helical
Option C:	spiral
Option D:	parabolic
11.	The Y deflection plate in CRT is used to shift the electron beam
Option A:	vertically
Option B:	horizontally
Option C:	only upwards
Option D:	only downwards
12.	The total outgoing magnetic flux is zero for a static magnetic field is
Option A:	Gauss law in electrostatics
Option B:	Gauss law in magnetostatics
Option C:	Faraday's law
Option D:	Ampere's Circuital law
13.	In coordinate transformation from Cartesian to cylindrical, the magnitude of position vector r is given by
Option A:	$r^2 = x^2 + y^2$
Option B:	$r^2 = x^2 - y^2$
Option C:	$r = x + y$
Option D:	$r = x - y$

14.	The size of nano materials lies in between
Option A:	1nm to 10 nm
Option B:	1 nm to 100 nm
Option C:	1 nm to 1000 nm
Option D:	1nm to 10000 nm
15.	Efficiency of a nano material can be increased by
Option A:	increasing the surface area to volume ratio
Option B:	decreasing the surface area to volume ratio
Option C:	increasing the surface area ratio only
Option D:	decreasing the surface area ratio only

Q2 and Q3 are compulsory

Q2. (15 Marks)	Solve any THREE out of Five. Each carries five marks.
A	If a wedge shaped film is illuminated by a parallel beam of monochromatic light of wavelength λ, find out the relation between wedge angle θ and fringe width β of parallel fringes formed.
B	Draw the block diagram of an optical fiber communication system and explain the function of each block.
C	Write a short note on Lissajous figure.
D	Given $\vec{A} = x^2 y\,\hat{i} + (x - y)\,\hat{k}$, find $\vec{\nabla} \cdot \vec{A}$
E	Explain the working of Semiconductor laser with proper diagram.

Q3. (15 Marks)	Solve any THREE out of Five. Each carries five marks.
A	Derive Gauss law for static electric and magnetic field in differential and integral form.
B	Explain the basic terms of laser (i) Absorption process (ii) Meta stable state (iii) Population Inversion (iv) Spontaneous emission and (v) Stimulated emission.
C	Explain the method to find out the wavelengths present in white light using diffraction grating.
D	What are the different techniques to synthesis nano material? Explain one of them in detail
E	In Newton's ring experiment, the diameters of the 4th & 12th dark rings are 0.4 cm & 0.7 cm respectively. Find the diameter of the 20th dark ring.

University of Mumbai
Examination 2020 under cluster 03 (Lead College: FCRIT)
Program: First Year Engineering
Curriculum Scheme: Rev2016
Examination: First Year Semester: II
Course Code: FEC202 and Course Name: APPLIED PHYSICS II

Time: $1\frac{1}{2}$ Hours   Max. Marks: 60

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Question Number	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	B
Q2.	A
Q3.	B
Q4	B
Q5	D
Q6	B
Q7	D
Q8.	B
Q9.	D
Q10.	D
Q11.	A
Q12.	B
Q13.	A
Q14.	B
Q15.	A

University of Mumbai
Examination 2020 under cluster 3 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **F.E (ALL BANCHES)**
Curriculum Scheme: Rev 2016
Examination: FE Semester II
Course Code: FEC203 and Course Name: Applied Chemistry II

Time: 1.5 hour   Max. Marks: 60

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	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Corrosion between the dissimilar metals is called as _____
Option A:	Galvanic corrosion
Option B:	Dry corrosion
Option C:	Oxidation corrosion
Option D:	Concentration cell corrosion
2.	This form of corrosion occurs due to concentration difference in a component
Option A:	Uniform
Option B:	Galvanic
Option C:	Intergranular
Option D:	Stress
3.	Select the compound which possess highest octane number and highest cetane number out of n-heptane, n-hexadecane, n-octane, iso-octane
Option A:	Highest Octane number: n-octane; Highest Cetane Number: n-hexadecane
Option B:	Highest Octane number: n-octane; Highest Cetane Number: n-heptane
Option C:	Highest Octane number: iso-octane; Highest Cetane Number: n-hexadecane
Option D:	Highest Octane number: n-octane; Highest Cetane Number: n-heptane
4.	When incomplete combustion loss is high, the flue gas analysis shows large amount of
Option A:	CO_2
Option B:	CO
Option C:	O2
Option D:	C
5.	Addition of which of the following elements imparts magnetic properties to steel:
Option A:	Mo
Option B:	Co
Option C:	Cr
Option D:	Si
6.	Which of the following statements is incorrect with respect to powder metallurgy:
Option A:	Powder metallurgy is suitable for manufacturing small number of components
Option B:	Life of component part is longer

University of Mumbai
Examination 2020 under cluster 3 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **F.E (ALL BANCHES)**
Curriculum Scheme: Rev 2016
Examination: FE Semester II
Course Code: FEC203 and Course Name: Applied Chemistry II

Time: 1.5 hour   Max. Marks: 60

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Option C:	Dimensional accuracy of the components are good
Option D:	There is negligible material loss
7.	Calculate the percentage atom economy for the following reaction with respect to acetanilide (At.Wts: C= 12, H= 1, N= 14, O= 16) : $C_6H_5NH_2$ + $(CH_3CO)_2O$ ------------□ $C_6H_5NHCOCH_3$ + CH_3COOH
Option A:	96.23
Option B:	75.42
Option C:	76.23
Option D:	66.32
8.	Synthesis of Adipic Acid from D-glucose is a green route because
Option A:	The synthesis is Atom economical
Option B:	The product is designed for degradation at the end of its function
Option C:	Catalytic reagents are used
Option D:	Renewable feed stock is used
9.	The strength of Dispersion strengthened composites is due to:
Option A:	The small dispersed particles hinders the motion of dislocations of the Matrix
Option B:	Particulate phase is harder and stiffer than the Matrix
Option C:	The particles provide high strength and stiffness on a weight basis
Option D:	The strong covalent bonds between the matrix and the particles
10.	Which of the following is not an application of a sandwich panel?
Option A:	Fabrication of wings of aircrafts
Option B:	Design of ships, boat hulls
Option C:	Conveyor belts
Option D:	Fabrication of roofs, floors and walls of buildings
11.	One of the good design principles is that the anode metal should not be painted when in contact with a dissimilar metal. This is because
Option A:	Paints tend to react with anodic metal
Option B:	Cathode metals lie higher up in the galvanic series
Option C:	Any break in coating would lead to rapid localized corrosion.
Option D:	Anode metals have large area compared to cathode metals.
12.	Statement: Reduction in overvoltage of the corroding metal accelerates the corrosion rate. Reason: Metals which occupies a higher position in the galvanic series have high overvoltage.

University of Mumbai
Examination 2020 under cluster 3 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **F.E (ALL BANCHES)**
Curriculum Scheme: Rev 2016
Examination: FE Semester II
Course Code: FEC203 and Course Name: Applied Chemistry II

Time: 1.5 hour   Max. Marks: 60

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Option A:	Both Statement and Reason are true and the Reason is the correct explanation of the statement.
Option B:	Statement is true but Reason is False.
Option C:	Both Statement and Reason are False.
Option D:	Both Statement and Reason are true but the Reason is not the correct explanation of the statement.
13.	Identify the incorrect statement amongst the following:
Option A:	Bronzes are alloys of Cu and Sn
Option B:	Bronzes are harder and stronger than Brasses.
Option C:	Bronzes are more expensive compared to Brasses.
Option D:	Bronzes are inferior to Brass with respect to corrosion resistance
14.	0.5 g of a sample of coal was used in a Bomb calorimeter for the determination of calorific value. Calorific value of coal was found to be 8,600 Kcal/ Kg. The ash formed I the Bomb calorimeter was extracted with acid and the acid extract was heated with Barium nitrate solution and a precipitate of Barium sulphate was obtained. The precipitate was filtered, dried and weighed. The weight was found to be 0.05 g. Calculate the percentage of sulphur in the coal sample. (At.wts: Ba= 137, S= 32, O= 16)
Option A:	1.373%
Option B:	2.273%
Option C:	13.73%
Option D:	22.73%
15.	Calculate the gross calorific value of a coal sample having the following composition: C= 80%, H= 7%, O= 3%, S= 3.5%, N= 2.1% and Ash= 4.4% (At.Wts: C= 12, H= 1, S= 32, O= 16)
Option A:	8356 Kcal/Kg
Option B:	8957 Kcal/Kg
Option C:	8885 Kcal/Kg
Option D:	8066 Kcal/Kg

Q.2.	Solve any **Three** out of Five Questions:	
A.	Explain the effect of the following factors on the rate of corrosion: (i) anodic and cathodic areas (ii) pH (iii) Overvoltage.	5
B.	Write a short note on the refining of crude petroleum. What are the important fractions obtained from petroleum? Mention their Boiling point range and industrial uses to which they are put.	5

University of Mumbai
Examination 2020 under cluster 3 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **F.E (ALL BANCHES)**
Curriculum Scheme: Rev 2016
Examination: FE Semester II
Course Code: FEC203 and Course Name: Applied Chemistry II

Time: 1.5 hour   Max. Marks: 60

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C.	Define Alloys. Mention atleast three properties that are enhanced in metals on alloying with suitable examples.	5
D.	What are green solvents? Give two examples. Mention atleast three applications of a green solvent.	5
E.	What are Fibre reinforced composites? Mention the different types with atleast two applications of each.	5
Q.3.	Solve any **Three** out of Five Questions:	
A.	Calculate the volume of air for the complete combustion of 1 m^3 of a gaseous fuel having the following composition: CO= 46%, CH_4= 10%, H_2= 40%, C_2H_2= 2%, N_2= 1% and remaining being CO_2. (At.Wts: C= 12, H= 1, S= 32, O= 16, N= 14)	5
B.	What is Cathodic protection? What are the types? Explain them with suitable diagram. Mention atleast two applications of Cathodic protection.	5
C.	What are Shape Memory Alloys? Discuss the phase changes occurring in it and mention at least three applications of it.	5
D.	(i) Discuss briefly pitting corrosion. (ii) What are structural composites? Give their types.	3 2
E.	(i) Calculate the minimum amount of air required for the complete combustion of 1 kg of fuel containing C= 90%, H= 3.5%, O= 3%, S= 0.5%, H_2O= 1.0%, N= 0.5% and ash= rest. (ii) Give the green synthesis of Carbaryl and explain which principle of green chemistry is addressed in this route.	3 2

University of Mumbai
Examination 2020 under cluster 3 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **F.E (ALL BANCHES)**
Curriculum Scheme: Rev 2016
Examination: FE Semester II
Course Code: FEC203 and Course Name: Applied Chemistry II

Time: 1.5 hour   Max. Marks: 60

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1.	A
2.	C
3.	C
4.	B
5.	B
6.	A
7.	B
8.	D
9.	A
10.	C
11.	C
12.	D
13.	D
14.	A
15.	B

University of Mumbai

Examination 2020 under cluster No.3 (FCRIT)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: **All programs**

Curriculum Scheme: Rev2016

Examination: FE Semester II

Course Code: FEC204

Course Name: Engineering Drawing

Time: 2 hour   Max. Marks: 60

NB :   (1) Use First Angle method of projection only.
       (2) Use your Judgment for any unspecified dimension.
       (3) Retain all construction lines.
       (4) Figures to the right indicate full marks.
       (5) All dimensions are in mm.
       (6) Show necessary dimensions.

| Q1.		Solve any One Question out of two	
	a.	Line AB 70mm long is inclined 30^0 to H.P and 60^0 to VP. Its end A is 10mm above and 20mm in front of V.P., while its end B is in third quadrant. Draw the projections of line AB.	10
	b.	A line AB 100mm long is tangent at the top of the circular disc of 70mm diameter. The point A is at the top of the circumference. The line AB rolls around the circumference of the circular disc in a clockwise direction. Draw the locus of the end A, till the end B touches the circle. Name the curve.	10
Q2.		Solve any Two Questions out of Three	
	a.	A pentagonal pyramid side of base 30mm, axis height 65mm has one of the base corner in the V.P. and triangular face apposite to this base corner inclined to the V.P. at 30 degrees. Draw the projections of a pyramid if the side of the base contained by a triangular face which is opposite to the corner is inclined to the H.P. at 30 degrees and apex nearer to the observer.	15
	b.	A cone base 60 mm diameter and axis 60mm long is lying on the H.P. on one of its generators with the axis parallel to V.P. A vertical section plane parallel to the generator cuts the cone in such a way that the cutting plane bisects the axis and removing a portion containing the apex. Draw its sectional front view and the true shape of the section.	15
	c.	Figure 1 shows F.V. and S.V. of an object. Draw isometric view of the object, using natural scale.	15
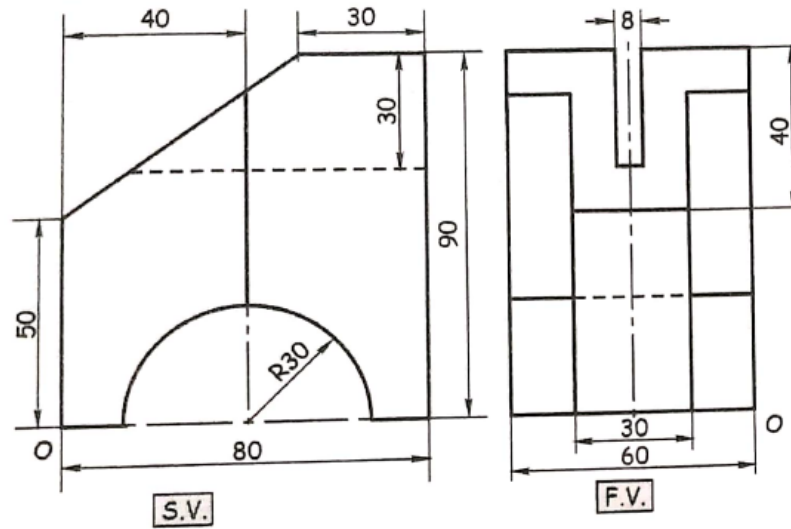
Figure 1

Q3. Figure 2 shows pictorial view of an object. Draw to full scale the following views

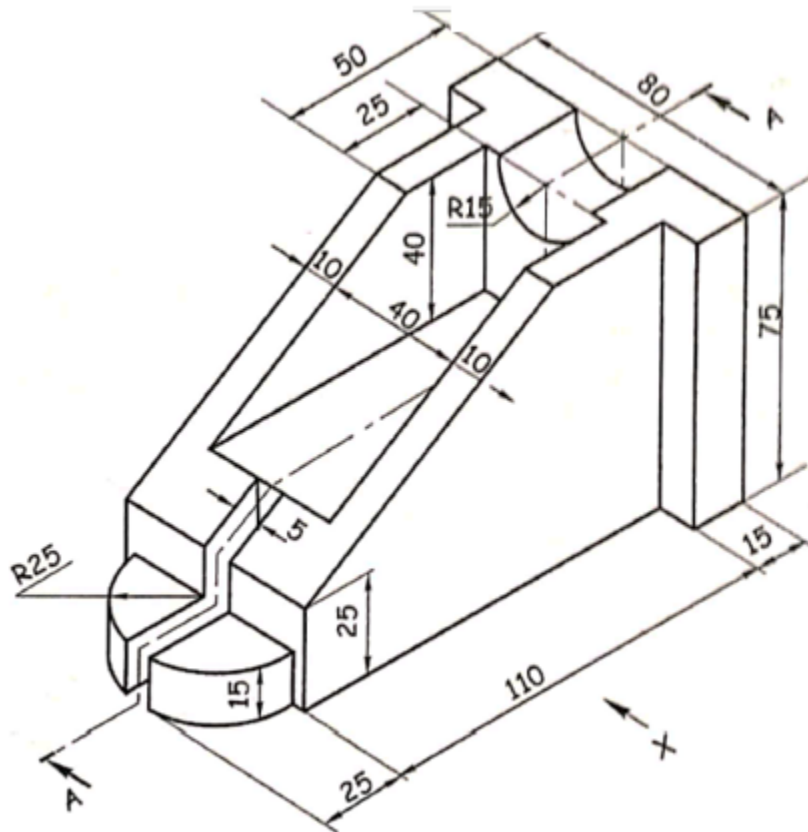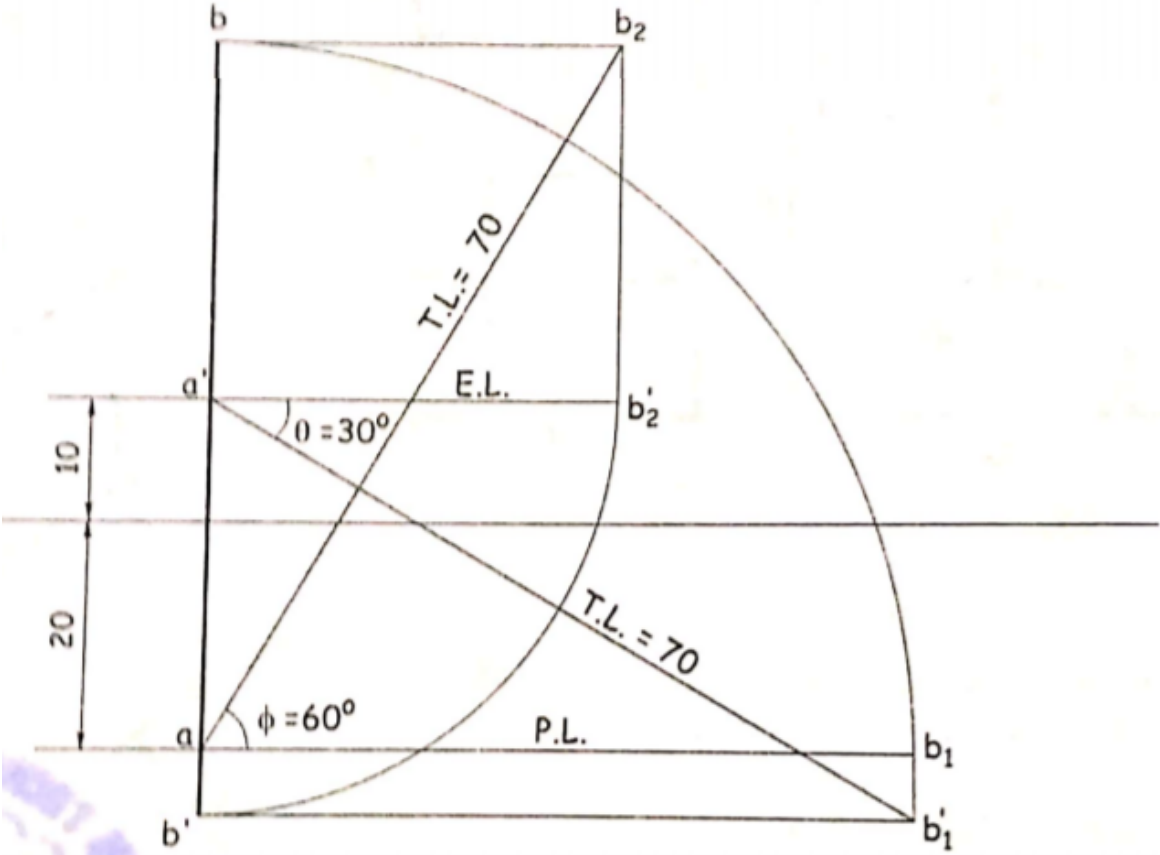|		
i)	Sectional front view (section A-A)	07
ii)	Top view	05
iii)	Left hand side view	05
iv)	Insert 10 major dimensions	03

Figure 2

University of Mumbai

Examination 2020 under cluster No.3 (FCRIT)

Examinations Commencing from 23rdDecember 2020 to 6thJanuary 2021 and from 7thJanuary 2021 to 20thJanuary 2021

Program: **All programs**

Curriculum Scheme: Rev2016
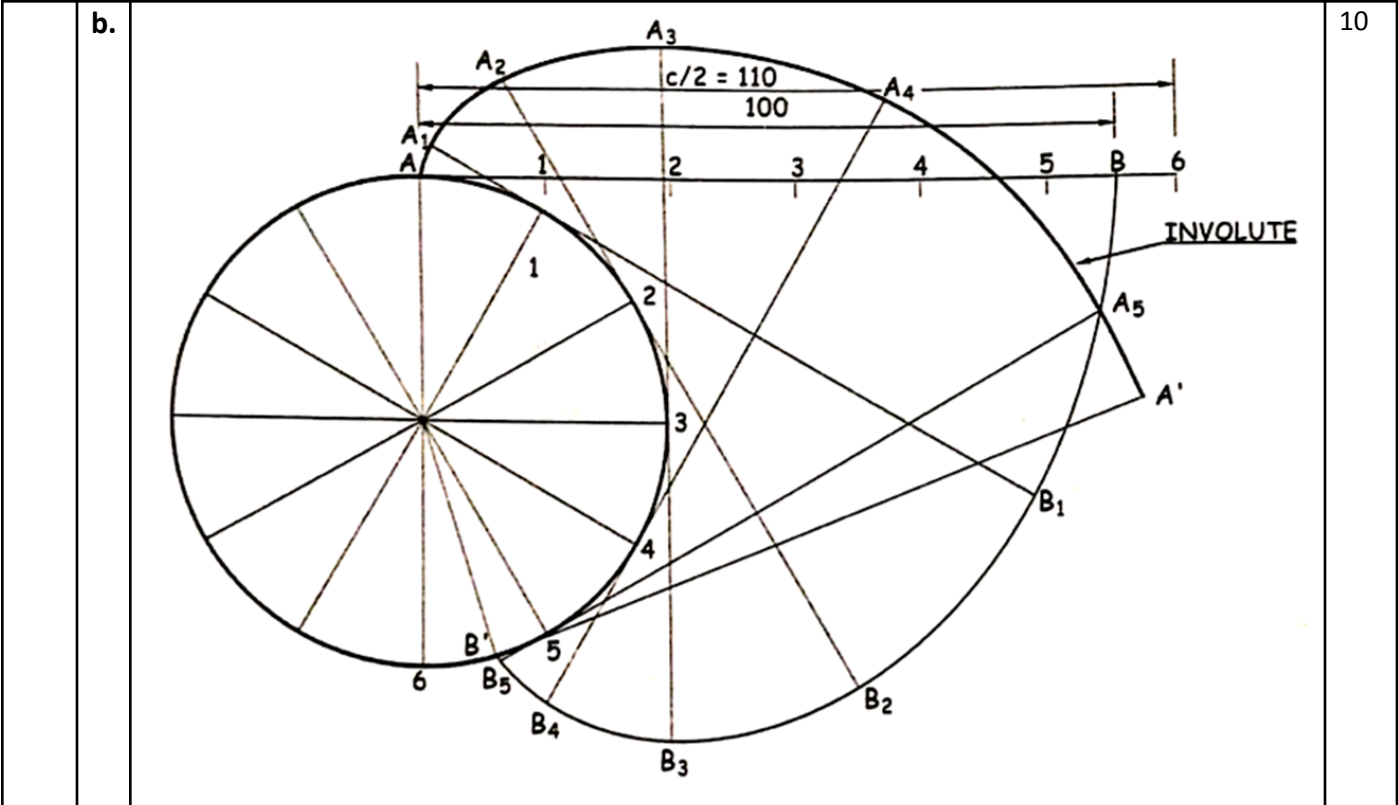
Examination: FE Semester II

Course Code: FEC204

Course Name: Engineering Drawing

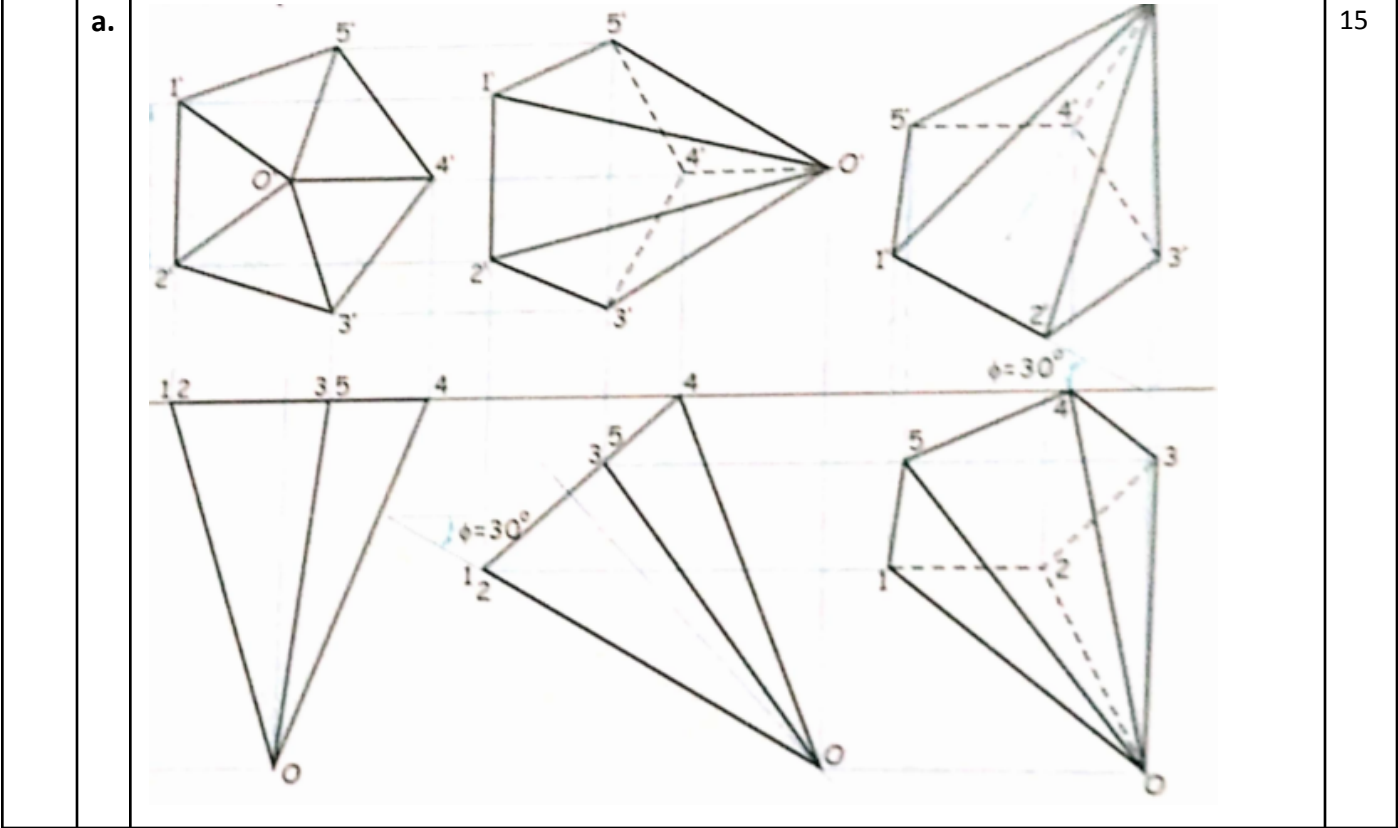Time: 2 hour   Max. Marks: 60
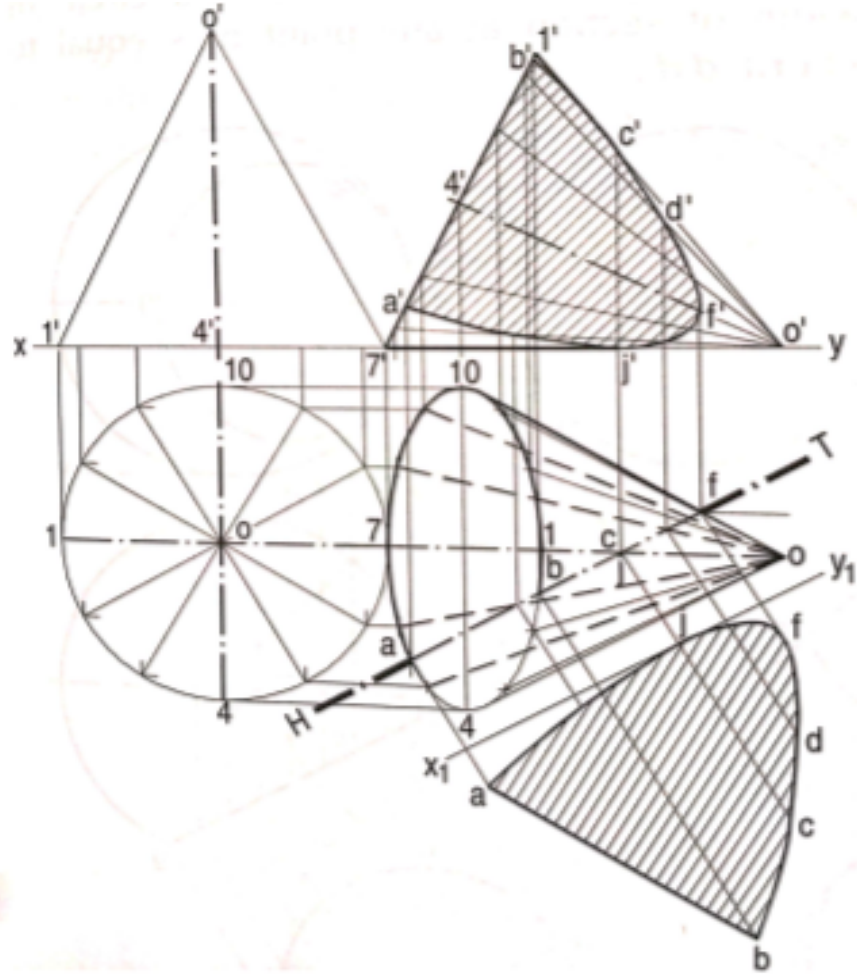
SOLUTION

Q1.		Solve any One Question out of two	
	a.		10

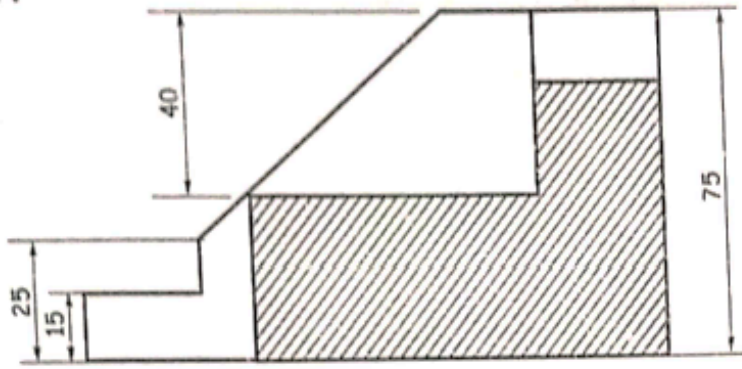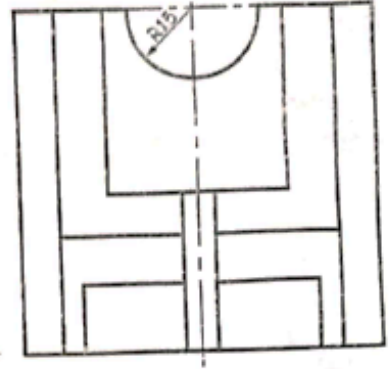|			
	b.		10
Q2.		Solve any Two Questions out of Three	
	a.		15

b.

15
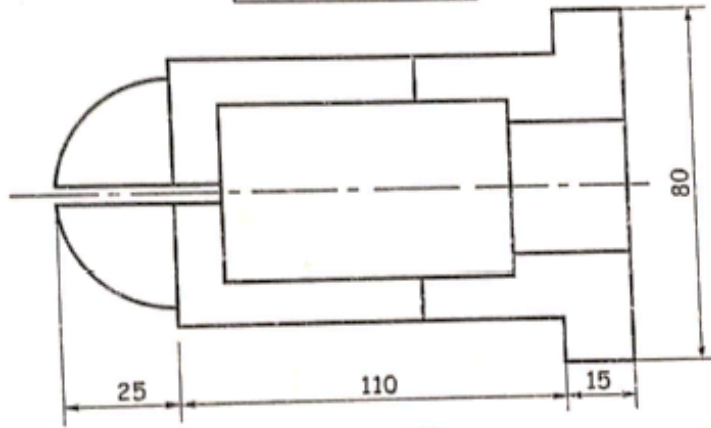
c.

15

Q3.
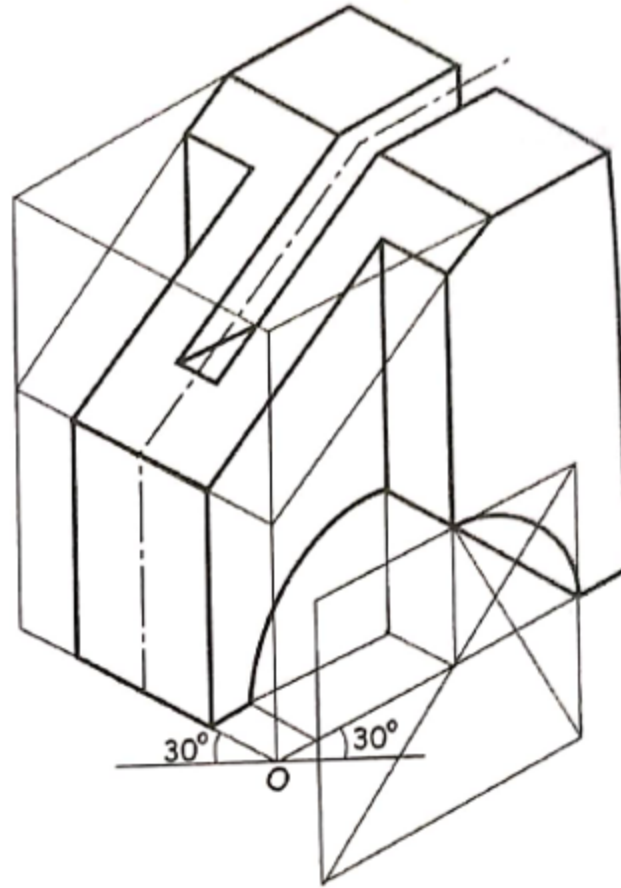
SECTIONAL F. V.

L.H.S.V.

T. V.

20

University of Mumbai
Examination 2020 under cluster 3 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **First Year Engineering**
Curriculum Scheme: Rev 2016
Examination: FE Semester II
Course Code: FEC205 and Course Name: Structured Programming Approach

Time: 2 hour   Max. Marks: 80

===

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks.
1.	Which of the following is a collection of programs that interfaces with a hardware?
Option A:	Application software
Option B:	System software
Option C:	All the user written application programs
Option D:	Spreadsheet software
2.	Which of the following is not the advantage of the compiler in comparison to the interpreter.
Option A:	Fast in debugging
Option B:	Less execution time
Option C:	Scan the entire program before translating it into machine code
Option D:	Do not run the code till all the errors are removed
3.	Which of the following backslash character indicates ASCII null character?
Option A:	\n
Option B:	\NULL
Option C:	\x
Option D:	\0
4.	Which of the following has highest operator precedence in C language?
Option A:	?:
Option B:	&
Option C:	==
Option D:	/
5.	Which of the following is not a selection or branching type of program control statement in C language?
Option A:	if
Option B:	switch
Option C:	for
Option D:	goto
6.	What will be the output of the following code? #include<stdio.h> void main()

```
{
        int a=10;
        if(a==10)
                print("yes");
        else
                printf("no");
}
```

Option A:	yes
Option B:	no
Option C:	10
Option D:	Compile time error

7.	What will be printed by the code below?
	#include<stdio.h>
	void main()
	{
	       float x= 23.4;
	       if(x<100)
	             printf("1");
	       if(x<200)
	             printf("2");
	       else
	             printf("3");
	}

Option A:	1
Option B:	12
Option C:	123
Option D:	2

8.	What will be the output of the following code?
	#include<stdio.h>
	void main()
	{
	       int a=10, b=20, c=30, d;
	       d=c>b?c:b>a?b:a;
	       printf("%d",d);
	}

Option A:	10
Option B:	20
Option C:	30
Option D:	0

9.	What will be the output of following code?
	#include<stdio.h>
	void main()
	{
	       int i;
	       for(i=1; i<3; ++i)
	             printf("i");
	}

Option A:	i

Option B:	ii
Option C:	iii
Option D:	iiii
10.	Which of the following declared variable will not be stored in RAM or primary memory?
Option A:	int a;
Option B:	static int a;
Option C:	extern int a;
Option D:	register int a;

11.	What will be the output of the following code?
	#include<stdio.h>
	void xyz(int *a) { ++*a; }
	void main()
	{
	    int a=10;
	    xyz(&a);
	    printf("%d",a);
	}

Option A:	0
Option B:	9
Option C:	10
Option D:	11
12.	What will be the value of b[1] element if an array is declared and defined as int b[]={1,2,3};
Option A:	1
Option B:	2
Option C:	NULL
Option D:	0 or Garbage value
13.	Which of the following is valid string declaration?
Option A:	String s = "char";
Option B:	Char s="string";
Option C:	char s[]="char";
Option D:	String s[]="String";

14.	What will be the output of following code?
	#include<stdio.h>
	struct { int a,b; }s;
	void main()
	{
	 a=10;
	 b=20;
	 printf("%d %d",s.a, s.b);
	}

Option A:	10 20
Option B:	20 10
Option C:	0 0

Option D:	Error

15.	What will be the output of the following code?
	#include<stdio.h>
	#include<string.h>
	void main()
	{
	 char a[] = "hello";
	 char b[] = "Hello";
	 printf("%d",strcmp(a,b));
	}

Option A:	Negative value
Option B:	0
Option C:	Positive value
Option D:	Error

16.	What will be the output of the following code?
	#include<stdio.h>
	void main()
	{
	    int i;
	    char a[]="hi\0xyz";
	    puts(a);
	    printf("hello");
	}

Option A:	hi\0xyz
Option B:	hi\0xyz hello
Option C:	hihello
Option D:	hi hello

17.	What is the output of the following code?
	#include<stdio.h>
	void main(){
	int a = 010;
	printf("%x",a); }

Option A:	1
Option B:	4
Option C:	8
Option D:	10
18.	Which of the following file opening mode opens a text file in read mode only in fopen()..
Option A:	r
Option B:	rb
Option C:	r+
Option D:	rb+
19.	What will be the output of the following code? #include<stdio.h>

	void main()
	{
	int a[] = {10,12,6,7,2};
	int *p;
	p=a+4;
	printf("%d",*p);
	}

Option A:	12
Option B:	6
Option C:	7
Option D:	2

20.	What will be the output of following code?
	#include<stdio.h>
	void main()
	{
	int a=10;
	int *p=&a;
	(*p)++;
	printf("%d",*p);
	}

Option A:	10
Option B:	11
Option C:	Garbage value
Option D:	Compile time error

Q2.	Solve any Four out of Six questions below. 5 marks each. Total 20 marks.
A	What are the different symbols used in the flowchart? Also draw a flowchart to decide a number is even or odd.
B	Write a program to determine entered year is leap year or not?
C	Write a program to print following output. **** *** ** *
D	Write a program to read two strings from the user, print length of both strings. Also search if the first string is present in second string or not? Use proper string manipulation function from string.h of the C language.
E	Write a program to read details of N staffs (id, name, age) using suitable user defined data type. Print these details in the tabular format.
F	Write a program to swap two numbers using call by reference.

Q3.	Solve any Four out of Six questions below. 5 marks each. Total 20 marks.
A	Write logical and bitwise operators supported in the C language. Write the operator symbol(s), name of the operator, and example use of each of the operator.
B	Write a program to find the smallest among three numbers using nested if-else statements.

C	Write all the storage classes in C language with respect to keyword, place of storage, scope of the variable, lifespan and default value of the respective storage class.
D	Write a program to read N numbers from the user in an array and print the largest number among them.
E	Write the differences between struct and union user defined data type of the C language, with an example code.
F	Write a program to open the already existing text file in read mode, print the contents of that text file, and close the file.

University of Mumbai
Examination 2020 under cluster 3 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program: **First Year Engineering**
Curriculum Scheme: Rev 2016
Examination: FE Semester II
Course Code: FEC205 and Course Name: Structured Programming Approach

Time: 2 hour   Max. Marks: 80

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Question Number	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	B
Q2.	A
Q3.	D
Q4	D
Q5	C
Q6	D
Q7	B
Q8.	C
Q9.	B
Q10.	D
Q11.	D
Q12.	B
Q13.	C
Q14.	D
Q15.	C
Q16.	D
Q17.	C
Q18.	A
Q19.	D
Q20.	B

University of Mumbai
Examination 2020 under cluster 03 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program : First Year Engineering (ALL BRANCHES)
Curriculum Scheme: Rev 2016
Examination: First Year Semester II
Course Code: FEC206 and Course Name: Communication Skills

Time: 1 hour   Max. Marks: 40

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Media interviews are channels of :
Option A:	Internal communication
Option B:	Internal formal communication
Option C:	Grapevine communication
Option D:	External communication
2.	Which of the following is a suitable medium while creating a food blog?
Option A:	Oral communication
Option B:	Good internet connection
Option C:	Visual communication
Option D:	Para language
3.	Speaking slowly and clearly helps with
Option A:	Psychological barriers
Option B:	Semantic barriers
Option C:	Mechanical barriers
Option D:	Cultural barriers
4.	Judicious use of Active and Passive voice while writing a letter is an aspect of :
Option A:	Completeness
Option B:	Courtesy
Option C:	Clarity
Option D:	Conciseness
5.	The following is an optional part of a business letter:
Option A:	Enclosure
Option B:	Dateline
Option C:	Complimentary close
Option D:	Salutation
6.	Reference to the purchase order letter is essential for:
Option A:	Sales letter
Option B:	Enquiry letter
Option C:	Claim letter
Option D:	Order letter

7.	Neither my mother nor her sisters _____ going to the marriage tomorrow.
Option A:	Is
Option B:	Have
Option C:	Are
Option D:	Were
8.	Kabeer was being very ___ about his 'study abroad' plans, and didn't disclose to even his closest friends.
Option A:	Discreet
Option B:	Discrete
Option C:	Discern
Option D:	Determine
9.	Reading Comprehension: Perhaps, the most vital single characteristic of the leader is vision. Tom Watson, Jr., in the 1950s, saw that the computer was key to IBM's future and, over his father's strenuous objections, literally drove International Business Machines into the computer business. According to the author, which characteristic of Tom Watson Jr. brought IBM into computer business?
Option A:	Determination
Option B:	IBM''s finances
Option C:	hard work
Option D:	Vision
10.	Reading Comprehension: Perhaps, the most vital single characteristic of the leader is vision. Tom Watson, Jr., in the 1950s, saw that the computer was key to IBM's future and, over his father's strenuous objections, literally drove International Business Machines into the computer business. Find the word closest in meaning to 'strenuous', in the context used:
Option A:	Vehement
Option B:	Future
Option C:	Guarded
Option D:	Unemphatic

Q2.	Solve any Two out of Three 5 marks each
A	Write a letter to **Connect2classes, Electronics Market, Bangalore** to enquire about online educational tools. Invent other necessary details. Write in Complete Block format.
B	What is meant by Grapevine communication? Explain with Advantages and disadvantages of the same.
C	Write a Sales letter offering membership to an elite club of video gamers.

Q3.	Solve any Two out of Three 5 marks each

A	Write a set of instructions along with Hazard notations for fixing a tripod camera.
B	Write a letter of adjustment providing suitable reparations for a set of damaged goods sent by your company Xtos Pvt. Ltd. Invent the necessary details. Write in Modified Block format.
C	Write a set of netiquettes to be followed while using email.

University of Mumbai
Examination 2020 under cluster 03 (Lead College: FCRIT)
Examinations Commencing from 7th January 2021 to 20th January 2021
Program : First Year Engineering (ALL BRANCHES)
Curriculum Scheme: Rev 2016
Examination: First Year Semester II
Course Code: FEC206 and Course Name: Communication Skills

Time: 1 hour   Max. Marks: 40

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Question Number	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	D
Q2.	C
Q3.	B
Q4	B
Q5	A
Q6	C
Q7	C
Q8.	A
Q9.	D
Q10.	A