SLR-UW-1

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Electronics Science
FUNDAMENTALS OF ELECTRONICS

Time: 2½ hours Max. Marks: 70

Instructions: 1) Q. (1) and (2) are compulsory.
2) Answer any three questions from Q.3 to Q.7.
3) All questions carry equal marks.
4) Use of nonprogrammable calculator is allowed.

Q.1 Select the correct alternative: **14**

1) KCL works on which of the following principle.
   a) Law of conservation of charge
   b) Law of conservation of energy
   c) KVL
   d) None of these

2) A P-N junction photodiode is _____.
   a) operated in forward direction
   b) encased in an opaque package
   c) a very fast detector
   d) dependent on thermally-generated minority carriers

3) Kirchhoff's current law is applied at _____.
   a) loops
   b) nodes
   c) both loop and node
   d) none of the mentioned

4) The width of depletion layer of a junction _____.
   a) increases with heavy doping
   b) decreases with light doping
   c) is increased under reverse bias
   d) is independent of applied voltage

5) _____ particles have a positive effective mass.
   a) Electrons
   b) Holes and electron both
   c) Holes
   d) Neutrons

6) The Thevenin voltage is the _____.
   a) Open circuit voltage
   b) Short circuit voltage
   c) Both open circuit and short circuit voltage
   d) Neither open circuit nor short circuit voltage

7) Another name for a unity gain amplifier is _____.
   a) difference amplifier
   b) comparator
   c) single ended
   d) voltage follower

8) JFET is _____ controlled device.
   a) voltage
   b) current
   c) both voltage and current
   d) power

9) In a common base configuration α is 0.95 and I_E is $1\ mA$, what will be the I_C and I_B?
   a) $0.99\ mA,\ 0.95mA$
   b) $0.95mA,\ 0.05mA$
   c) $1.98\ mA,\ 0.16mA$
   d) $1mA, 0.1mA$

10) Two-terminal device designed to respond to photon absorption is _____.
   a) IR b) LED
   c) Laser d) Photodiode

11) Monostable 555 timer has _____.
   a) one stable state b) two quasi-stable states
   c) no stable state d) two stable states

12) If the input to a integrator is a square wave, then output is a _____.
   a) ramp voltage b) triangular wave
   c) rectangular wave d) saw tooth wave

13) The major difference between ground and virtual ground is that virtual ground is only a _____.
   a) voltage reference b) current reference
   c) power reference d) difference reference

14) In a JFET, drain current is maximum, when V_{GS} is _____.
   a) zero b) negative
   c) positive d) equal to V_p

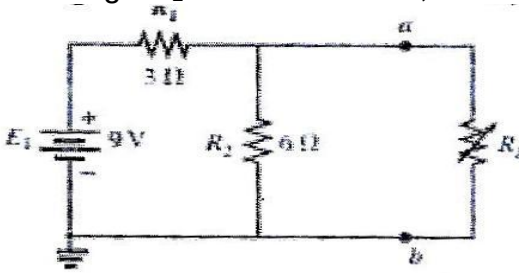
Q.2 Answer the following. **14**

a) Give a brief account of extrinsic semiconductor. **05**

b) Write a note on formation of depletion layer. **04**

c) Explain the characteristic of a practical op-amp. **05**

Q.3 a) State and prove Thevenin's theorem with the following example. Find R_{Th}, V_{Th} and the current through R_L for values of $2\ \Omega, 10\ \Omega$ and $100\ \Omega$. **08**

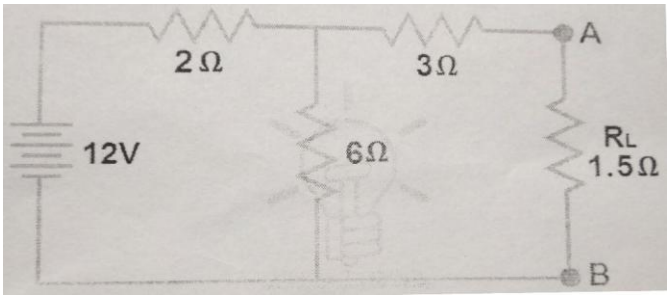


b) Explain in brief the term electric power and energy. **06**

Q.4 a) Explain in detail the following with their I/V characteristics. **10**
   i. Forward biased P-N junction.
   ii. Reverse biased P-N junction.

b) What is a PIN photodiode? **04**

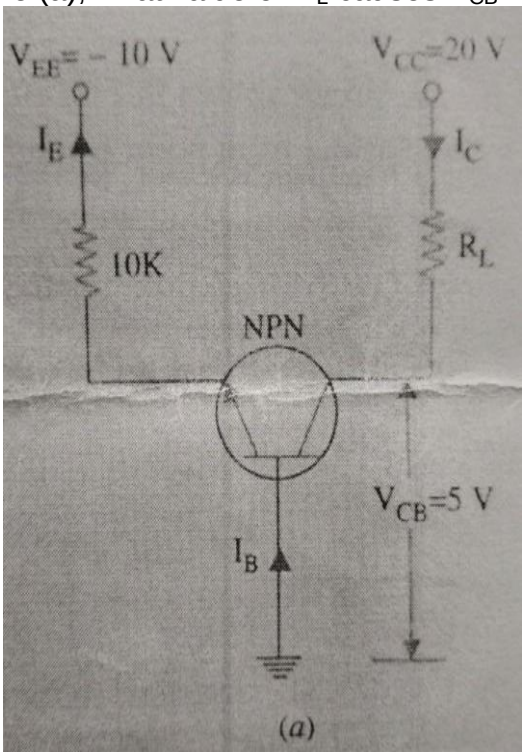
Q.5 a) State and prove Norton's theorem with following example. Find R_N, I_N and load voltage across the load resistor in following figure by using Norton's Theorem. **08**



b) State and explain Maximum power transfer theorem with suitable a example. **06**

Q.6 **a)** Explain common emitter configuration with a suitable sketch. **10**

b) In the circuit of figure (a), what value of R_L causes $V_{CB} = 5V$? **04**



Q.7 **a)** **Explain in detail op amp as:** **10**

1) An integrator
2) Differentiator

b) Write a note on active and passive elements. **04**

SLR-UW-4

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Physics (Applied Electronics)
ELECTRONIC INSTRUMENTATION

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Q.1 and Q.2 are compulsory.
2) Attempt any three questions from Q. no. 3 to Q. no. 7.
3) Figures to the right indicate full marks.
4) Use of nonprogrammable calculator is allowed.

Q.1 A) Choose correct alternative: **08**

1) The sensors are classified on the basis of _____.
   a) Functions b) Performance
   c) Output d) All of the above

2) The ability to give same output reading when same input value is applied repeatedly is known as _____.
   a) Stability b) Repeatability
   c) Accuracy d) Sensitivity

3) With the increase in the intensity of light, the resistance of a photovoltaic cell _____.
   a) Increases b) Remains same
   c) Decreases d) None of these

4) In electronic voltmeter, the range of input voltages can be extended by using _____.
   a) Functional switch b) Input attenuator
   c) Balanced bridge ac amplifier d) Balanced bridge dc amplifier

5) Q-meter is used to measure the properties of _____.
   a) Inductive coils b) Non Inductive coils
   c) Capacitive coils d) Both (a) and (c)

6) In Wheatstons bridge method, the instrument used as null detector is _____.
   a) Voltmeter b) Galvanometer
   c) Ammeter d) Q-Meter

7) What is the result of taking more samples during the quantization process?
   a) More errors in the analog-to-digital conversion
   b) More bit requirements
   c) More accurate signal representation
   d) More bit requirements and more accurate signal representation

8) The outstanding characteristic of a D.C. amplifier is its _____.
   a) Temperature stability
   b) Ability to amplify DC and low frequency signals
   c) Better dc isolation
   d) Avoidance of frequency sensitive components

B) State True or False **06**

1) Thermocouple is an active transducer.
2) Photodiode is always forward biased.
3) The decibel is a measure of voltage level.
4) In an amplifier, the coupling capacitors are employed for dc. Isolation
5) Piezoelectric transducer can measure dynamic, but not the static pressure.
6) In capacitance current leads the voltage.

Q.2 Write short notes on the following:

a) Displacement transducer **05**

b) V to I Converter **05**

c) Features of Instrumentation Amplifier **04**

Q.3 a) What do you mean by a transducer? State and explain the characteristics of a transducer. **06**

b) Discuss the transducer for the measurement of – **08**

1) Motor speed
2) Mechanical pressure

Q.4 a) State and brief out the desirable characteristics of an instrumentation amplifier and hence derive an expression for the combined gain. **06**

b) What is the need of D.C. amplifier? Explain the D.C. amplifier with circuit diagram. **08**

Q.5 a) Explain the Sample and Hold circuit. Why is it needed? **06**

b) Explain the following with a neat circuit diagram – **08**

1) F to V Converter
2) Perk detector

Q.6 a) Give working of a Digital Multimeter. **06**

b) Explain AC bridge technique to measure the inductance of a coil. Comment on the accuracy of inductance measurement. **08**

Q.7 State and explain the working principle of any Two of the following-

a) Piezoelectric transducer **07**

b) Inverse transducer **07**

c) Q-meter **07**

SLR-UW-6

Seat No.		Set	P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Physics (Material Sciences)
CONVENTIONAL AND NON-CONVENTIONAL ENERGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Q no. 1 & Q. no. 2 are compulsory.
2) Attempt any three questions from Q. no. 3 to Q. no. 7
3) All questions carry equal marks.

Q.1 Choose the correct Alternative: **14**

1) The proper pair in the following is _____.

k) Diode	x) amplification
l) Triode	y) Conversion of light in electricity
m) Photodiode	z) Rectification
n) LED	t) Conversion of electricity in light

a) kz, lx, my, nt b) kx, ly, mt, nz
c) ky, lx, mz, nt d) kt, ly, mx, nz

2) FET is _____ controlled device.
a) current b) voltage
c) frequency d) all of there

3) Bluetooth uses _____ ISM band.
a) 2.4 GH_z b) 0.24 GH_z
c) 2.4 MH_z d) 0.24 MH_z

4) The band width of an audio signal in AM radio is _____.
a) 5 kH_z b) 15 kH_z
c) 200 kH_z d) 20 kH_z

5) For obtaining a smooth DC one has to use _____.
a) Half wave rectifier with filter
b) Full wave rectifier with filter
c) Half wave rectifier with no filter
d) Full wave rectifier with no filter

6) The maximum natural gas reserve is in the country _____.
a) Qatar b) USA
c) Iran d) Russia

7) For photo voltaic one of the followings material is used.
a) Cadmium oxide b) Zinc oxide
c) Cadmium sulphide d) Cadmium chloride

8) Kaiga power plant is in a state_____.
a) Gujarat b) Tamilnadu
c) Himachal Pradesh d) None of these

9) The high temperatures in the stars are due to _____.
e) Nuclear fission f) Plasma
g) Gravitational contraction h) Fusion reaction

10) Sun falls on the _____ of a HR diagram.
   a) in the right corner
   b) to the left of a main sequence
   c) in the middle of main sequence
   d) at the end of main sequence

11) The lowest density of a planet in a solar system is of the planet _____.
   a) Earth b) Mars
   c) Saturn d) Pluto

12) Wavelength of radio wave is _____ the wavelength of infrared wave.
   a) Less than b) Almost same to
   c) Higher than d) None of these

13) Aditya space craft will be launched by ISRO to study _____.
   a) Coronal mass ejection b) Moon Exploration
   c) Mars Exploration d) X-rays from space

14) The Guru shikhar observatory is in _____.
   a) Himalayas b) Sahyadri mountains
   c) Vindhya mountains d) Arawali mountain

Q.2 Answer in brief.

a) Convert following numbers in Hexa decimals. **04**
   i. $(854)_{10}$
   ii. $(423)_{10}$

b) Explain chain reaction. **05**

c) What are different orbits? What are their specialties? **05**

Q.3 a) Describe in detail the different configuration of the transistor. **10**

b) Write note on android phones. **04**

Q.4 a) How nuclear energy is produced from fission process. How the nuclear reactor works? **10**

b) Write a note on fusion process. **04**

Q.5 a) Where are the major optical and radio telescopes erected in India? What are their specialties? **10**

b) What are neutron stars? **04**

Q.6 a) What are different orbits? What is the specialty of GTO? **08**

b) Comment on the uses of remote sensing satellites. **06**

Q.7 Write notes on:

a) Wind Power **05**

b) Carbon dating **05**

c) The Brahmas missile **04**

SLR-UW-7

Seat No.		Set	P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Chemistry
INSTRUMENTAL METHODS OF ANALYSIS

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Attempt in all five questions.
2) Section I is compulsory.
3) Attempt any two questions from Section II and any two from Section III.
4) Answer to all questions (Section I, II and III) should be written in same one answer book.
5) All question carry equal marks.
6) Figures to the right indicate full marks.
7) Use of log tables and calculators is allowed.

Section – I

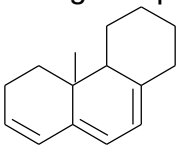
Q.1 Answer the following **14**

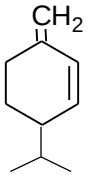
a) What is the function of nebulizer in ICP?
b) Define spin-spin relaxation.
c) Which is most abundant peak in alkyl aniline?
d) Predict the transition involved in methyl chloride.
e) The dodecane shows the base peak at _____
f) Name the factors affecting IR frequencies.
g) Predict the modes of vibration in benzene molecule.
h) 1-Phenyl ethanol shows the base peak at m/z 107 due to _____ ion.
i) Name the factors affecting chemical shift.
j) What is the nuclear spin value for C^{13} nuclei?
k) Define absorbance.
l) The most intense peak in the mass is known as _____ peak.
m) Define coupling constant.
n) Name the different types of atomizers used in AAS.

Section – II

Q.2 **a)** Explain the principle and working of NMR spectroscopy. **07**
b) What is the basic principle of AAS? Explain the different types of interference in AAS. **07**

Q.3 **a)** Discuss the construction and working of plasma torch. **07**
b) With the help of Woodward and Fieser's rules calculate the λ max values for following compounds. **07**

i) 

ii) 

Q.4	**a)**	Draw a neat labeled schematic diagram of double beam IR spectrophotometer and explain its working.	**07**
	b)	Deduce the structure of an organic compound on the basis of following date: Molecular Formula: $C_9H_6O_2$ UV – 260 nm IR: 3000-2700, 2200, 1690, 1500, 700 cm^{-1} PMR (ppm): 7.5 δ, complex, 5H; 11.00 δ, 1H	**07**

Section – III

Q.5	**a)**	Describe fragmention pattern of benzyl alcohol.	**05**
	b)	Distinguish between ICP-AE and AAS.	**05**
	c)	Explain TMS is used as internal standard in PMR spectroscopy.	**04**
Q.6	**a)**	Explain in the brief account of different types of ions produced in the ion source of mass spectrophotometer.	**05**
	b)	Discuss in brief Chemical shift.	**05**
	c)	Explain in brief factor influncing chemical shifts.	**04**
Q.7	**Write a notes (any three):**		**14**
	a)	Factors affecting IR frequencies	
	b)	Spin-spin coupling	
	c)	Various fragmentation mode of diphenyl ether	
	d)	Qualitative applications of UV-Visible Spectrophotometer	

SLR-UW-11

Seat No.		Set	P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Mathematics
FUNDAMENTALS IN MATHEMATICS

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Attempt five questions.
2) Q no. 1 & Q. no. 2 are compulsory.
3) Attempt any three questions from Q. no. 3 to Q. no. 7.
4) Figures to the right indicate full marks.

Q.1 A) Select correct Alternatives of the following question: **05**

1) If dim v = n then the number of vectors in a basis of v is _____
   a) less than n b) equal to n
   c) greater than n d) none of these

2) The minimum number of elements required to form a vector space over any field is _____.
   a) 1 b) 2
   c) n d) None of these

3) A superset of a Linearly dependent set is _____
   a) Linearly dependent
   b) Linearly independent
   c) May or may not linearly dependent
   d) None of these

4) If a vector space has a finite number of basis then the number of vectors in every basis is the _____
   a) Different b) Same
   c) Exact d) None of these

5) If T : $V_1 \to V_2$ is one-one then ker T=_____
   a) {0} b) {1}
   c) {2} d) None of these

B) State whether True or False **05**

1) Every system of linear equation has a solution.
2) For any $A, B \in M_{nxn}(F)$, $\det(AB) = \det A \,.\, \det B$
3) If T : V → W is linear then nullity (T) + rank (T) = dim W
4) Every subspace of finite dimensional space is finite dimensional.
5) If the system has one or more solutions the system is called consistent.

C) 1) Define Inverse of matrix. **02**
2) Define linear Transformation. **02**

Q.2 A) Define Rank of matrix. **03**

B) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$ & $B = \begin{bmatrix} -3 & -2 \\ 1 & -5 \\ 4 & 3 \end{bmatrix}$ **03**

Find $D = \begin{bmatrix} p & q \\ r & s \\ t & u \end{bmatrix}$ such that $A + B - D = 0$

C) If T be a linear map on $R^2(R)$ defined by $T(x, y) = (Gx - 2y,\ 2x + y)$ then find matrix representation of T relative to ordered basis $\{(1,1), (-1,0)\}$ **04**

D) If x, y & z are vectors in vector space v such that $x + z = y + z$ then prove that $x = y$ **04**

Q.3 A) If A is non singular matrix then prove that A^{-1} is also non singular & $(A^{-1})^{-1} = A$ **06**

B) Compute the Rank & the inverse of a given matrix. **08**

$$\begin{bmatrix} 1 & 2 & 1 \\ -1 & 1 & 2 \\ 1 & 0 & 1 \end{bmatrix}$$

Q.4 A) Prove that: Elementary matrices are invertible & the inverse of an elementary matrix is an elementary matrix of the same type. **07**

B) Prove that : Let S be Linearly independent subset of vector space V & x be vector in V that is not in S then SU $\{x\}$ is linearly dependent iff $x \in$ spans (S) **07**

Q.5 A) Find matrix representation of linear map T : $R^3 \rightarrow R^3$ given by **08**

$$T(x, y, z) = (z, y + Z, x + y + z)$$

Relative to the basis $\{(1, 0, 1), (-1, 2, 1), (2, 1, 1)\}$

B) Determine the following system of linear equation has a solution or not. **06**

$x_1 + 2x_2 + 3x_3 = 1$
$x_1 + x_2 - x_3 = 0$
$x_1 + 2x_2 + x_3 = 3$

Q.6 A) Show that the vectors **06**
$(1,1,0), (1,0,1)$ & $(0,1,1)$ generates R^3

B) State & prove Replacement Theorem. **08**

Q.7 A) Show that T : $R^2 \rightarrow R^3$ defined by T $(a_1, a_2) = (a_1 + a_2, 0, 2a_1 - a_2)$ is one-one & but not on to **06**

B) Prove that following vectors are linearly independent **08**
1) (1, 2, 1), (2, 1, 4), (4, 5, 0)
2) (0, 1, -2), (1, -1, 1), (1, 2, 1)

SLR-UW-13

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Statistics
STATISTICAL METHODS

Time: 2½ hours Max. Marks: 70

Instructions: 1) Attempt five questions.
2) Q no. 1 & Q. no. 2 are compulsory.
3) Attempt any three questions from Q. no. 3 to Q. no. 7.
4) Figures to the right indicate full marks.
5) Non-programmable / simple calculator is allowed.

Q.1 A) Choose the correct Answer: **10**

1) A shoes manufacturer wishes to manufacture only the most popular size shoes. Which measure of central tendency for the shoes can help the manufacturer to arriving at the desired size?
   a) Arithmetic mean b) Median
   c) Mode d) Harmonic mean

2) Geometric mean of two numbers $\frac{1}{16}$ and $\frac{4}{25}$ is _____.
   a) $\frac{1}{10}$ b) $\frac{1}{100}$
   c) 10 d) 100

3) A discrete random variable X has the probability mass function given by:

X	2	4	6	8	10
P (x)	$\frac{1}{12}$	$\frac{1}{6}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{6}$

   Then P ($4 \leq X \leq 8$) is equal to _____.
   a) $\frac{1}{12}$ b) $\frac{5}{12}$
   c) $\frac{1}{6}$ d) $\frac{3}{4}$

4) The variable of binomial distribution with parameters n and p is _____.
   a) n p b) n p q
   c) n^2 p q d) $\frac{p\,q}{n}$

5) Which of the following is the second kind error in testing of hypothesis?
   a) Accept H_0 b) Accept H_0 when it is false
   c) Reject H_0 d) Reject H_0 when it is true

6) If two regression coefficients are -1.2 and -0.3, then the correlation coefficient is
   a) -0.36 b) -0.6
   c) 0.06 d) 0.6

7) For a symmetric frequency distribution, first quartile is 142 and quartile deviation is 18 then median is _____.
   a) 110 b) 120
   c) 140 d) 160

8) If each observation of series is multiply by a constant k, then coefficient of variation as compared to the original value _____.
   a) is increased by k b) is decreased by k
   c) remains unchanged d) is k times the original value

9) If ranks in each pair are equal then Spearman's rank correlation coefficient is _____.
   a) 0 b) 1
   c) -1 d) 0.5

10) When the correlation coefficient r = ± 1 then the two regression lines are _____.
   a) perpendicular to each other b) parallel to each other
   c) coincide d) does not exist

B) State whether the following statements are true or false. **04**

1) Correlation coefficient is the arithmetic mean of two regression coefficients.
2) Bernoulli distribution is a special case of binomial distribution.
3) If A and B are mutually exclusive events then probability of intersection of them is always one.
4) Sign test is used in testing randomness of a given set of observations.

Q.2 A) Answer the following: **06**

1) Define the terms: Type I error, Type II error and level of significance of a test.
2) The mean and variance of a binomial distribution are 16 and 8 respectively.
   Find P(X=0)

B) Write short notes on the following: **08**

1) Scatter diagram of studying correlation
2) Signed-rank test

Q.3 A) What do you mean by measures of central tendency? State the various measures of central tendency and explain any two of them. **07**

B) Calculate quartile deviation and its coefficient from the following data. **07**

Age	20-25	25-30	30-35	35-40	40-45	45-50	50-55
Number of persons	8	16	20	36	25	15	5

Q.4 A) What is regression? Define regression coefficients. How are they related to coefficient of correlation? If the lines of regression coincide, what would be the values of the three coefficients? **07**

B) From the data given below, obtain the regression equation of Y on X. Estimate Y if X = 30. **07**

X	25	28	30	32	35	37	38	40	41	44
Y	20	26	29	30	25	18	26	35	35	46

Q.5 A) Define: **07**

1) Sample space
2) Probability of an event
3) Mutually exclusive events

Give an illustration of each.

B) Define probability mass function (p.m.f) of a discrete random variable X. Examine whether the following functions can be considered as p.m.f. **07**

1) $P(X = x) = \frac{2x+1}{18}, x = 0, 1, 2, 3$

2) $P(X = x) = \frac{x^2-2}{8}, x = 1, 2, 3$

Q.6 **A)** Define uniform distribution over (a, b). The radius X of a ball bearing has uniform distribution over (0, 1.5). Find: **07**

1) P (X > 0.5)
2) P (X < 0.4)
3) P (0.3 < X < 1.2)

B) Define Poisson distribution with parameter λ. Give a real life situation where Poisson distribution can be applied. Let X be a Poisson variate with $\lambda = 1$, find P (3 < X < 5), mean and variance. **07**

Q.7 **A)** Define the contingency table? How do you test independence of attributes with (2×2) contingency table. **07**

B) How do you test hypothesis $H_0 : P = P_0$ against $H_0 : P \neq P_0$ for a large sample at α% level of significance? In a sample of 500 people in a village 280 are tea drinkers and rest are coffee drinkers. Can we assume that both coffee and tea are equally popular in this state at 1% level of significance? **07**

SLR-UW-14

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Statistics
MATHEMATICAL STATISTICS

Time: 2½ hours Max. Marks: 70

Instructions: 1) Attempt five questions.
2) Question 1 and 2 are compulsory.
3) Attempt any three from Q. No. 3 to Q. No. 7
4) Figures to the right indicate full marks.
5) Use of non-programmable/simple calculator is allowed.

Q.1 A) Choose the correct alternative: **10**

1) If a random variable X having probability generating function $P_X(s)$ then _____.
   a) $s \leq 1$ b) $s < 1$
   c) $s < \infty$ d) $-1 \leq s \leq 1$

2) Suppose X has geometric distribution with probability of success 0.3 and that of failure 0.7 on each observation. The mean and variance of X is _____.
   a) 0.3, 0.21 b) 3.33, 2.79
   c) 1.43, 0.61 d) 2.33, 7.77

3) If X has discrete uniform distribution over 1,2,…,n, then the variance of X is _____.
   a) $\frac{n^2+1}{12}$ b) $\frac{n^2-1}{12}$
   c) $\frac{n+1}{2}$ d) $\frac{n-1}{2}$

4) If F(x) is distribution function of continuous random variable X, then _____
   a) $0 \leq F(x) \leq 1$
   b) $F(x)$ is defined for all values of x
   c) $F(x)$ is non-decreasing function of x
   d) All the above are true

5) If F(x,y) has BVN(0,1,4,1,0.5), then variance of X-Y is _____.
   a) 5 b) 3
   c) 4 d) 7

6) Let X be a random variable having exponential distribution with mean 5. Then $P(X > 5)$ is _____
   a) e b) 1
   c) 1-e d) 1/e

7) A random variable X has following distribution:

X	-1	-2	1	2
P(x)	1/3	1/6	1/6	1/3

   Then E(X) is _____
   a) 3/2 b) 1/6
   c) 1/2 d) None of these

8) For a binomial random variable with parameters n and p, the mean number of success is _____.
   a) p/n b) x/n
   c) np d) npq

9) Which one of the following condition is true for independence of two events A and B?
   a) $P(A \cap B) = P(A)P(B)$ b) $P(A / B) = P(A)$
   c) $P(B/ A) = P(B)$ d) All the above

10) Let X has $U(3,6)$ distribution. Then variance of X is _____.
   a) $\frac{3}{4}$ b) $\frac{1}{2}$
   c) $\frac{9}{2}$ d) $\sqrt{\frac{3}{2}}$

B) Fill in the blanks: **04**

1) The number of printing mistakes on a randomly selected page of a book follows _____ distribution.
2) A student appearing for examination either 'passes' or fails'. This is a real life situation of _____ distribution.
3) Suppose X is normal random variable with mean $\mu = 50$ and standard deviation $\sigma = 7$. If $Y = X - 7$, then standard deviation of Y is _____.
4) If X is Poisson variate such that $P(X = 1) = P(X = 2)$, then mean of distribution is _____.

Q.2 a) Explain the terms: **06**

1) Joint probability mass function
2) Marginal probability function
3) Conditional probability mass function

b) Write short notes on the following: **08**

1) Bayes theorem.
2) Characteristics function of a random variable.

Q.3 a) Define Poisson distribution with parameter λ. Also find its mean and variance. **07**

b) Let X be continuous random variable with probability density function **07**

$$f(x) = kx, \quad 0 \le x \le 5$$
$$= 0, \quad \text{otherwise}$$

Find: i) k ii) $E(X)$ iii) $var(X)$

Q.4 a) Define probability mass function of discrete uniform distribution. Illustrate the distribution with two real life examples. **07**

b) Verify whether the following functions can be considered as a probability mass function. **07**

1) $P(X = x) = \frac{1}{5}, \ x = 0,1,2,3,4$
2) $P(X = x) = \frac{2x+1}{18}, \ x = 0,1,2,3$

Q.5 a) Define exponential distribution with parameter λ. The life time of a certain battery is a random variable, which has exponential distribution with mean 320 hrs. Find the probability that such a battery will last at most 160 hrs. Also find the probability that such a battery will last between 640 hrs and 960 hrs. **07**

b) Define normal distribution. Also discuss its properties. **07**

Q.6 **a)** Consider the following bivariate probability distribution: **07**

Y \ X	-1	0	2
0	1/15	2/15	1/15
1	2/15	2/15	1/15
2	2/15	2/15	2/15

Obtain: 1) Marginal distribution of X
2) Marginal distribution of Y
3) Conditional distribution of Y given X=0

b) Define distribution function of a bivariate discrete random variable (X, Y) and state its important properties. **07**

Q.7 **a)** Define probability generating function (p.g.f.) of a random variable X. Explain how to obtain mean and variance of a discrete random variable X using p.g.f. **07**

b) State the following inequalities with application: **07**
1) Monkowski inequality
2) Jensen's inequality

SLR-UW-15

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Geoinformatics
CLIMATOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answer any Five Questions
2) All Questions carry equal marks
3) Question No.1 is Compulsory
4) Attempt any two from Q.No.2, 3 and 4
5) Attempt any two from Q.No.5, 6 and 7

Q.1 Select the answer among the following **14**

1) Primary circulation of atmospheric wind system includes _____.
   a) Trade winds b) Westerlies
   c) Polar Easterlies d) All the above

2) The zone of trade winds is also called as _____.
   a) Ferrel cell b) Hadley cell
   c) Subpolar cell d) All the above

3) The three cell model of the northern hemisphere meridional circulation was prepared by _____.
   a) Koppen b) Trewartha
   c) Hadley (1735) d) Palmen (1951)

4) The weight of water vapour per weight of given mass of air including the water vapour is called as _____.
   a) Absolute Humidity b) Specific Humidity
   c) Relative Humidity d) Mixing Ratio

5) The hydrological cycle involves _____.
   a) Evaporation b) Condensation
   c) Precipitation d) All the above

6) Heavy and dense cloud, with a considerable vertical extent is known as _____.
   a) Stratus b) Cirrocumulus
   c) Cumulonimbus d) All the above

7) The fairly uniform precipitation composed exclusively of fine drops of water less than 0.5 mm diameter and very close to one another is called as _____.
   a) Rain b) Drizzle
   c) Snow d) All the above

8) According to Haurwitz and Austin, major precipitation regimes are_____.
   a) Equatorial b) Tropical
   c) Monsoon d) All the above

9) In Australia typhoons is known as _____.
   a) Baguio b) Willy-Willy
   c) Taifu d) Cyclones

10) Tropical monsoon and equatorial climate are kinds of _____.
   a) Polar climate
   b) Temperate climate
   c) Tropical climate
   d) Frontal climate

11) A broad trough of low pressure in equatorial latitudes is known as _____.
   a) Coriolis force
   b) ITCZ
   c) Jet stream
   d) Centripetal force

12) _____is the rainiest station in India.
   a) Shillong
   b) Mumbai
   c) Chennai
   d) Kolkata

13) Process in which water vapors are releases in air by leaves of plants is called_____.
   a) Respiration
   b) Precipitation
   c) Evaporation
   d) Transpiration

14) Mango Shower is known as _____
   a) Premonsoon rainfall in Karnataka and Kerala
   b) Rainfall in June to September
   c) Rainfall caused by western disturbances
   d) Rainfall in winter days

Q.2 Explain in brief Single Cell Model of Atmosperical circulation. **14**

Q.3 Discuss in detail the term Evaporation? **14**

Q.4 What is Cyclone? Describe the origin, Structure and stages of Tornados. Add a note on Regional Distribution. **14**

Q.5 **Write a short note on:** **14**
a) History and Importance of Climatology
b) Structure of Atmosphere

Q.6 **Write a brief on:** **14**
a) Absolute Humidity
b) Specific Humidity

Q.7 **Write an account on:** **14**
a) Thunderstorm
b) Hydrological Cycle

SLR-UW-17

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Applied Geology
NATURAL RESOURCE MANAGEMENT

Time: 2½ hours Max. Marks: 70

Instructions: 1) All questions carry equal marks.
2) Question 1 is compulsory.
3) Answer any two essay questions from 2, 3, 4
4) Answer any two short note questions from 5, 6, 7
5) Draw neat and labeled diagrams wherever necessary.

Q.1 Fill in the blanks with appropriate choice **14**

1) A dam in which entire force acting on it are directly transmitted to the foundation rock is known as:
   a) Gravity dam b) Arch dam
   c) Buttress dam d) Earthen dam

2) Which among the following is the main reason for survival of some dense forests in India?
   a) Conservationists
   b) Environmentalists
   c) Scientific forestry
   d) Villages protected them as sacred grooves

3) Which of the following is a new development in forestry?
   a) Conservation of forests
   b) Collecting timber
   c) Scientific forestry
   d) Keeping communities away from forests

4) What was not a factor in discouragement of shifting agriculture?
   a) Land so used could not grow timber
   b) It made it harder for government to calculate taxes
   c) Many local communities were displaced
   d) There was danger of flames spreading

5) Imperial Forest Reserve Institute was set up in
   a) Dehradun b) Mussourie
   c) Bangalore d) Simla Bangalore

6) The best forests were
   a) protected forests b) reserve forests
   c) state forests d) village forests

7) Which of the following is not a feature of shifting cultivation?
   a) Parts of the forest are cut and burnt in rotation
   b) Seeds are sown in the ashes
   c) Plots cleared are cultivated for a few years and then left follow
   d) Single crop is grown on these plots

8) Sustainable development will not aim at:
   a) Social economic development which optimize the economic and societal benefits available in the present, without spoiling the likely potential for similar benefits in the future
   b) Reasonable and equitable distributed level of economic well being that can be perpetuated continually
   c) Development that meets the need of the present without compromising the ability of future generation to meet their own needs
   d) Maximizing the present day benefits through increased resourced consumption

9) Social, economical and ecological equity is the necessary condition for achieving.
   a) Social development
   b) Economical development
   c) Sustainable development
   d) Ecological development

10) One way of reducing harm to environment is
   a) reclamation
   b) blasting
   c) explosion
   d) renovation

11) To harness solar energy products which are helpful are
   a) solar furnace
   b) solar heater
   c) solar cells
   d) all of them

12) Burning of fossil fuel are leading towards
   a) pollution
   b) global warming
   c) both a and b
   d) none of these

13) Trapped heat inside of earth is known as
   a) thermal energy
   b) geothermal energy
   c) heat energy
   d) volcano

14) When wind blows across seas and oceans there are seen
   a) waves
   b) whirling
   c) surfs
   d) snails

Q.2 Discuss various agricultural Practices in India. Add a note exploitation of agricultural Land. **14**

Q.3 What is the importance of energy conservation? Write in detail methods of energy conservation. **14**

Q.4 Explain Non-renewable energy resources? Add a note on their importance. **14**

Q.5 **Write brief on:** **14**
a) Range Land Management
b) Rain Water Harvesting

Q.6 **Write brief on:** **14**
a) Causes and consequences of Land degradation
b) Joint Forest Management

Q.7 **Write small account on:** **14**
a) Forest Fire and its Control
b) Mineral resources in India

SLR-UW-18

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Applied Geology
Watershed Management

Time: 2 ½ hours Max. Marks: 70

Instructions: 1) Answer any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two essay questions from 2, 3, 4
5) Answer any two short note questions from 5, 6, 7
6) Draw neat and labeled diagrams wherever necessary.

Q.1 Multiple choice questions: **14**

1) Watershed plan provides a comprehensive understanding of:
   a) Conservation of remaining natural process
   b) Water and water related functions across time and space
   c) Coordination with future development
   d) All of the above

2) In which of the following places of India precipitation is in form of snowfall?
   a) Shillong b) Drass
   c) Chandigarh d) Haridwar

3) Eroded soils are:
   a) Rich in plant nutrients b) Unaltered in plant nutrients
   c) Devoid of plant nutrients d) All of these

4) Watershed management planning phases is / are:
   a) Reconnaissance survey b) Local or watershed level survey
   c) Watershed inventory d) All of the above

5) A slopy land on account of continued rainfall initially under goes:
   a) Rill erosion b) Gully erosion
   c) Sheet erosion d) All of these

6) Soil conservation can best achieved by having:
   a) Wind screens b) Good plant covers
   c) Restricted human activity d) Low rainfall

7) Most parts of India receive rainfall during which of the following months?
   a) December to February b) March to may
   c) June to September d) October to November

8) Bunds, dams and drains are constructed to prevent _____.
   a) Stream bank erosion b) Sheet erosion
   c) Slip erosion d) Gully erosion

9) _____ is the upper surface of the zone of saturation.
   a) Water line b) Hydroequalization gradient
   c) Aquatic differentiation margin d) Water table

10) Terracing is an effective method of soil conservation _____.
   a) Desert areas
   b) Hilly areas
   c) Plains
   d) Riverine areas

11) Managing watershed in forest area is / are:
   a) Practices for soil protection and flood control
   b) Practices for decreasing water yield
   c) Collection of stream orders
   d) None of these

12) _____ is the total length of all the streams and rivers in drainage basin divided by the total area of the drainage basin.
   a) Bifercation ratio
   b) Drainage density
   c) Stream frequency
   d) Drainage intensity

13) If the same crop is repeatedly grown in a field:
   a) Nitrogen starvation many result
   b) Specific mineral deficiency may arise
   c) Soil will become prone to diseases
   d) Water level in soil will recede

14) _____ factor will not affect the runoff.
   a) Shape of the watershed
   b) Rainfall intensity
   c) Wind direction
   d) Topography

Q.2 What is Watershed? Discuss various engineering measures used for water and soil conservation. **14**

Q.3 Describe formation of Rainfall / Precipitation. Add a note on Rainfall pattern in India. **14**

Q.4 Define Soil Process? Explain the factors which affect the soil erosion? **14**

Q.5 **Write short notes on:** **14**
a) Land capability classification
b) People participation in watershed management

Q.6 **Explain in shorts:** **14**
a) Estimating runoff processes & factors affecting runoff
b) Watershed management plan

Q.7 **Write note on:** **14**
a) Groundwater Table
b) Groundwater table recharge

SLR-UW-19

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Computer Science
OFFICE AUTOMATION

Time: 2½ hours Max. Marks: 70

Instructions: 1) Figure to right side indicates full marks.
2) Question 1 and 2 are compulsory.
3) Attempt any three questions from Q.3 to Q.7.

Q.1 A) Select correct alternatives: **10**

1) Which of the following expresses correct order?
   a) Characters, Fields, Records, Tables, Files, Database
   b) Characters, Fields, Records, Tables, Database, Files
   c) Database, Tables, Files, Records, Fields, Characters
   d) Files, Databases, Tables, Records, Fields, Characters

2) You can automatically include all of the field in a table in a query by _____ a strike that appear list box in query design view.
   a) Clicking b) Right clicking
   c) Double clicking d) None of the above

3) How to select one hyperlink after another during a slide presentation?
   a) Ctrl + K b) Ctrl + H
   c) Tab d) Ctrl + D

4) Special effects used to introduce slides in a presentation are known as?
   a) effects b) transitions
   c) custom animations d) annotations

5) Which PowerPoint feature allows the user to create a simple presentation quickly?
   a) Transition Wizard b) AutoContent Wizard
   c) Animations d) Chart Wizard

6) With which of the following all formulas in excel starts?
   a) / b) *
   c) $ d) =

7) What term describes explanatory text attaches to a cell?
   a) Context b) Callout
   c) Comment d) Dialog

8) Which of the following is not valid version of MS Office?
   a) Office XP b) Office Vista
   c) Office 2007 d) None of above

9) What is the short cut key to open the open dialog box?
   a) F12 b) Shift F12
   c) Alt + F12 d) Ctrl + F12

10) Background color or effects applied on a document is not visible in
   a) Web layout view b) Print Layout view
   c) Reading View d) Print Preview

B) True or False **04**

1) MS-office is database application.
2) Desktop is application that used to browse web pages.
3) Desktop Start button is used to start the computer system.
4) MS-Excel used to design sheets and charts.

Q.2 a) Describe following terms **08**

1) Menu bar and Title bar
2) Layout tab

b) Write a short note on following **06**

1) Desktop
2) Access forms

Q.3 a) What is computer? Explain application of computers in education and research. **07**

b) What is icon? Explain any five icons in details. **07**

Q.4 a) What is use of clip arts in MS-Office? Explain the mail merge in details. **07**

b) How many menus in spreadsheet? Explain formatting process in details. **07**

Q.5 a) What is the use of charts in MS-excel? Explain the process of excel auditing. **07**

b) How to design good presentation by using Computer? Which software are useful to design presentation. **07**

Q.6 a) How you can create a table using MAOL. (Microsoft Access Objects Library)? **07**

b) How you can create a simple query in Access? **07**

Q.7 a) What is MS-excel? Explain the different file format with file extension. **07**

b) How to create table in MS-Office? Explain the sub menus of table tab. **07**

SLR-UW-20

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Computer Science
LINUX OPERATING SYSTEM

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Q. no. 1 & Q. no. 2 are compulsory.
2) Attempt any three questions from Q. no. 3 to Q. no. 7.
3) Figures to the right indicate full marks.

Q.1 A) Choose the correct Answer: **10**

1) Which command is used to see the online manual?
   a) Man b) manual
   c) *man d) All of the above

2) Which command is used to count the total number of lines, words and characters contained in a file?
   a) countw b) wcount
   c) wc d) countp

3) Which hardware architectures are not supported by Red Hat?
   a) SPARC b) IBM-Compatible
   c) alpha d) Macintosh

4) Any files attributes information is stored in which structure on the disk.
   a) Inode b) data blocks
   c) file blocks d) directory file

5) Effective user id can be set using following permission.
   a) 0777 b) 2666
   c) 4744 d) None of the above

6) Which command is used to record a user login session in a file?
   a) macro b) read
   c) script d) none of the above

7) Which command is used to change permission of files and directory?
   a) mv b) chgrp
   c) chmod d) set

8) In the shell by default, all variable are considered stored as.
   a) string b) integer
   c) character d) float

9) Which command is used to close the vi editor.
   a) q b) wq
   c) both (a) and (b) d) all of the above

10) ____is loaded into memory when system is booted.
   a) kernel b) shell
   c) command d) all of the above

B) State whether true or false. **04**

1) Suspend command puts a script to sleep until a signal is received.
2) Vi editor commands are not case sensitive.
3) Linux is an open source operating system and the source code is shared.
4) cp command is used to copy files and directors.

Q.2 A) Write short note on following. **08**

1) Kernel
2) Samba

B) Answer the following. **06**

1) How do you execute the shell script
2) Explain the advantages of Linux operating system.

Q.3 Answer the following.

A) What is vi-editor? Explain various modes of vi-editor. **07**

B) Explain the entire booting process of Linux operating system. **07**

Q.4 Answer the following.

A) How Red Hat package manager is used to install and update package? Describe it. **07**

B) What is DHCP? Explain with an example. **07**

Q.5 Answer the following.

A) Write commands for installing and updating packages using RPM. **07**

B) Explain in detail about the Linux system directory organization. **07**

Q.6 Answer the following.

A) What is X-Windows? Explain components of X-Windows system. **07**

B) Discuss the communication facilities in Linux operating system? **07**

Q.7 Answer the following.

A) Write a shell program to count the number of files and sub directories in the specified directory. **07**

B) Explain the concept of DNS for Linux system. **07**

SLR-UW-21

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Zoology
COMPUTATIONAL BIOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Q.1, 2 & 6 are Compulsory.
2) Answer any two from Q.3, 4 & 5.

Q.1 Multiple choice questions. (Per question 2 marks) **14**

1) Arithmetic mean of 12, 18, 28, 16 & 15 is _____.
   a) 17 b) 18
   c) 19 d) 17.5

2) Median of the following discrete frequency distribution is ____.

No. of accidents:	0	1	2	3	4
No. of shifts:	2	9	8	4	1

   a) 1 b) 2
   c) 3 d) 4

3) The mode the following distribution is _____.

Classes:	0-10	10-20	20-30	30-40	40-50
Frequency:	12	13	19	15	13

   a) 24 b) 25
   c) 26 d) 27

4) An empirical relation among mean, median and mode is _____
   a) Mean = mode = median b) Mode + 2 mean = 3 median
   c) Mean + 2 mode = 3 median d) = 2 mode + 5 mean = 6 mean

5) Hb% of an animal was recorded as 6, 7, 4, 5, 5, 3, 4 gm/100ml. Then the median Hb% is _____.
   a) 4gm/100ml b) 5gm/100ml
   c) 6gm/100ml d) 7.5gm/100ml

6) The correlation coefficient always lies between _____
   a) -0, -1 b) -1 & + 1
   c) -1 & 0 d) +5 & -5

7) Mean deviation is least when measured from _____.
   a) Mean b) Median
   c) Mode d) Zero

Q.2 Long answer type question. (compulsory) **14**
What are the requisites of good measures of central tendency, state which of the average is good.

Q.3 Answer the following.
a) Define arithmetic mean, median & mode. **07**
b) Explain the difference between absolute and relative measures of dispersion. **07**

Q.4 Explain the following.
a) Define binomial distribution and state its mean & variance. **05**
b) Explain standard Derivation. **05**
c) Chi-square test. **04**

Q.5 Explain in short.

a) Write a note on scatter diagram. State types of correlations. **07**

b) Define null hypothesis. **07**

Q.6 Write short note on any four of the following. **14**

a) Define spearman's rank correlation, coefficient.

b) Use empirical relation among mean, median & mode to find mode if mean & medians are 5 & 7 respectively.

c) Write a note on histogram.

d) Define normal distribution with parameters μ and σ^2 state its mean & variance.

e) Define mutually exclusive events and give are example.

f) Scattered diagram.

SLR-UW-23

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Genetics
PLANT BREEDING AND TISSUE CULTURE

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Section I is compulsory.
2) From Section II attempt any four.
3) All questions carry equal marks.
4) Figure to right indicate full marks.
5) Draw neat and labeled diagrams.

Section – I

Q.1 A) Choose the correct answer from given alternatives. **07**

1) Methods of selection showing vegetative propagation are _____.
   a) Mass selection b) Pure line selection
   c) Pedigree selection d) Clonal selection

2) _____demonstrated first time the recovery of protoplasts through enzymatic degradation of cell walls.
   a) E. C. Cocking (1960) b) J. M. Nelson (1916)
   c) A. Fleming (1929) d) K. J. Kasha (1973)

3) The method of Pure line selection has been developed from classical concept of _____.
   a) W. L. Johannsen b) D. S. Athwal
   c) De. Varies d) C.S. Jacob

4) The directed desirable gene transfer from one organism to other and the subsequent expression of the gene is referred as _____.
   a) Transgenomics b) Transgenosis
   c) Transgenics d) Transposons

5) Quick method of plant breeding is _____.
   a) Selection b) Introduction
   c) Mutation breeding d) Hybridization

6) A technique, by which monoclonal antibodies are produced in specialized cells, is known as _____.
   a) Transformation b) Hybridoma
   c) Cybridoma d) Drug designing

7) _____IS chemical mutagen used in mutation breeding.
   a) Mustard gas b) Cochicine
   c) DES d) All of the above

B) Answer the following terms: **07**

1) What is intravarital hybridization?
2) What is Introduction of plants?
3) What is edible vaccine?
4) What is cryopreservation?
5) What is male sterility?
6) What is somaclonal variation?

Section – II (Attempt any four)

Q.2 Describe in detail anther and pollen culture, and production of haploid and doubled haploid plants. **14**

Q.3 Describe breeding methods for clonally propagated crops. **14**

Q.4 Describe in details breeding for resistance to heat, frost and soil stress. **14**

Q.5 **Answer any Two of the following:** **14**

a) Describe in brief preservation of plant germ plasm in-vitro.
b) Describe Bulk method in self pollinated crops.
c) Describe in vitro mutagenesis and mutant selection.

Q.6 **Answer any Two of the following:** **14**

a) Describe Transgenic plants with reference to modification of flower, fruit ripening.
b) Describe merits and demerits of three way cross in cross pollinated crop.
c) Global status and biosafety of transgenic plants.

SLR-UW-25

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Biotechnology
IMMUNOLOGY AND IMMUNO TECHNIQUES

Time: 2½ hours Max. Marks: 70

Instructions: 1) All questions of Section I are compulsory.
2) Answer any four questions from Section II.

Section – I

Q.1 A) Choose the correct alternative and rewrite the sentences: **07**

1) MHC class II peptide binding cleft is formed by domains _____.
   a) α1 and α2 b) α1 and β1
   c) α1 and α3 d) α2 and α3

2) Acid fastness in Mycobacterium tuberculosis is due to presence of _____.
   a) Peptidoglycan b) Mycolic acid
   c) Teichoic acid d) None of these

3) _____ Antibody is involved in type I hypersensitivity reactions.
   a) Ig G b) Ig M
   c) Ig D d) Ig E

4) The transfer of grafts from donor to recipient belongs to different species is called _____.
   a) Isograft b) Allograft
   c) Xenograft d) Autograft

5) The viral antigen is processed and presented by _____ pathway.
   a) Endocytic b) Cytosolic
   c) Complement d) None of these

6) Widal test is example of _____ type of reaction.
   a) Agglutination b) Precipitation
   c) Flocculation d) Complement fixation

7) _____ is organ specific autoimmune disease.
   a) Rheumatoid arthritis
   b) Systemic lupus erythematosus
   c) Graves disease
   d) None of these

B) Define the following terms: **07**

1) Acute and hyper acute graft rejection
2) Function of cytokines
3) Tumor antigens
4) Enlist factor affecting antigenicity
5) Peptide vaccines
6) Antigen and antibody
7) Radioimmunoassay

Section – II

Q.2 Give structural, morphological, cultural, life cycle and pathogenicity characters of malarial parasite. **14**

Q.3 Explain mechanism of processing and presentation of endogenous antigen. **14**

Q.4 Write an essay on precipitation and agglutination. **14**

Q.5 **Answer any two of the following:** **14**

a) Explain structure of MHC class II molecule.
b) Explain any two organ specific autoimmune disease.
c) Physical and chemical barriers of innate immunity.

Q.6 **Answer any Two of the following:** **14**

a) New trend vaccines
b) Classical complement pathway
c) Cell of immune system

SLR-UW-27

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Bioinformatics
PROGRAMMING IN OBJECT ORIENTED LANGUAGES

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part-I, Question 1 is compulsory.
2) Attempt any four questions from part-II
3) Figures to the right indicate full marks.
4) Answer to the Part-I and Part-II are to be written in same answer Booklet only.

Part – I

Q.1 A) Rewrite the sentence after choosing the correct answer from the given alternatives. **07**

1) _____is the range of data type short in Java
   a) -128 to 127 b) -32768 to 32767
   c) -2147483648 to 2147483647 d) None of the mentioned

2) _____incorrect string literal.
   a) “Hello World” b) “Hello\n World”
   c) “\”Hello World”” d) “Hello world”

3) AWT stands for _____.
   a) All Windows Tools b) All Writing Tools
   c) Abstract Window Toolkit d) Abstract Writing Toolkit

4) _____keyword used to make a class.
   a) Class b) struct
   c) int d) None of the mentioned

5) Class used to make a thread is _____.
   a) String b) System
   c) Thread d) Runnable

6) _____is a valid declaration of an object of class Box
   a) Box obj = new Box(); b) Box obj = new Box;
   c) obj = new Box(); d) new Box obj;

7) Perl stands for_____.
   a) Practical extraction report language
   b) Preparation extraction report language
   c) Practical extraction review language
   d) None of these

B) Define the following terms: **07**

1) Data types
2) Interface
3) JDBC
4) Exception
5) Constant in java
6) AWT
7) List in Perl

Part - II

Answer any four of the following.

Q.2 What is Looping & types of looping in java with suitable example? **14**

Q.3 Explain applet life cycle? Design a registration page using applet. **14**

Q.4 Define Perl. Explain array & list data in Perl with example. **14**

Q.5 **Answer any two of the following:** **14**

a) Explain interface in java.
b) Application of java in bioinformatics.
c) Explain constants in java with example.

Q.6 **Write short notes on. (Any two)** **14**

a) Java features
b) Exception handling in java.
c) Application of Perl in bioinformatics.

SLR-UW-29

Seat No.		Set	P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Electronics
SIGNALS AND SYSTEMS

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Q no. 1 & Q. no. 2 are compulsory.
2) Attempt any three questions from Q. no. 3 to 7
3) Attempt five questions.

Q.1 A) Choose the correct Answer: **08**

1) Which of the following statement are true?
   i. An LTI system is always stable
   ii. On LTI system is stable only if the integral of its impulse response is finite
   iii. In a system if the input is bounded then the output is always bounded
   iv. In a system even if the I/P is unbounded the O/P can be bounded

   a) ii only b) i and iii only
   c) iii only d) i and iv

2) To obtain x(4-2n) From the given signal x(n), the following precedence rule is used for operations on the independent variable n:
   a) Time scaling → Time shifting → Reflection
   b) Reflection → Time scaling → Time shifting
   c) Time scaling → Reflection → Time shifting
   d) Time shifting → Time scaling→ Reflection

3) If x(t) is even, then its fourier series coefficients must be _____.
   a) Real and even b) Real and odd
   c) Imaginary and odd d) Imaginary and even

4) In a _____ system there will not be any energy storage elements, signal delays.
   a) Static b) Dynamic
   c) Causal d) Time invariant

5) The impulse response of a system is h(n) = a^n u(n). The condition for the system to BIBO stable is
   a) A is real and positive b) A is real and negative
   c) $|a| > 1$ d) $|a| < 1$

6) If f(t) = f(-t) and f(t) satisfy the dirichlets conditions, then f(t) can be expanded in a fourier series containing _____.
   a) Only sine terms
   b) Only cosine terms & constant term
   c) Cosine terms & constant term
   d) Sine terms & a Constant term

7) The area under the curve $\int_{-\infty}^{+\infty} \delta(t)$ is
   a) Unity b) ∞
   c) 0 d) Undefined

8) Mathematically discrete time unit impulse can be obtained as _____.
   a) $\delta(n) = u(n) - u(n-1)$ b) $\delta(n) = u(n) + u(n-1)$
   c) $\delta(n) = u(n) + u(n+1)$ d) $u(n) = \delta(n) - \delta(n-1)$

B) State true or false: **06**

1) A continuous time signal x(t) is said to be even if it is identified with reflection about t = 0.
2) An alternating waveform will always have even harmonic only.
3) For power signal the energy is finity.
4) The stability of non-LTI system can be tested by using its impulse response.
5) Truncation operation contains only present sample, not the past samples.
6) The system characterized by the equation y(t) = ax(t) +b is linear.

Q.2 A) Attempt any two: **10**

1) What is MATLB? Explain different commands of MATLAB.
2) Obtain Liner convolution of following sequence x(n) = h(n) $\{1, 2, -1, 3\}$
3) Determine the even & odd components of x(t) = e^{jt}

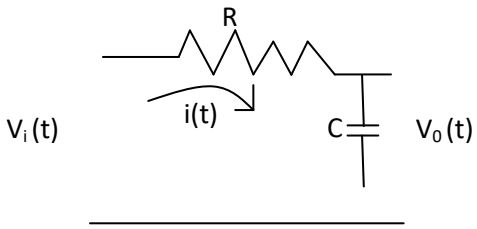
B) Write a Matlab Program to plot a continuous time sine signal and its sampled version. **04**

Q.3 A) Compute liner convolution of following sequence using basic equation of convolution. **08**

x(n) = 1 and h(n) = $\{2, 1, 2, 1\}$

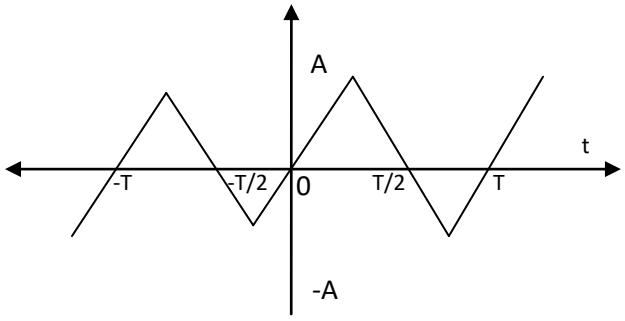
B) Prove that LTI system is stable if its impulse response is absolutely summable. **06**

Q.4 A) Find whether the following continuous time LTI system is stable. **08**



B) Sketch the signal x(t) = e^{-t} for a interval 0≤ t ≤ 2 sample. The signal with sampling period T = 0.2 sec. and sketch discrete time signal. **06**

Q.5 A) Obtain the trigonometric fourier series of the triangular waveform shown in figure. **08**



B) State the necessary and sufficient conditions for the existence of the fourier series representation for a signal. **06**

Q.6	**A)**	Explain in detail about different types operation on signal with suitable examples.	**08**
	B)	Prove that LTI system is completely characterized by unit impulse response.	**06**
Q.7	**A)**	Explain y(n) = sgn$[x(n)]$ system with respect to following properties. i. Time invariance ii. Linearity iii. Causality iv. Stability	**08**
	B)	Determine impulse response of the DT-LTI system in terms of unit impulse input δ(n) for h(n) = 2^{-n} u(n) - 2^{-n} u(n-3)	**06**

SLR-UW-31

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Botany
ADVANCES IN PLANT PATHOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Attempt in all five questions.
2) Q.1 is compulsory.
3) Attempt any two from Q. No. 2 to 4.
4) Attempt any two from Q. No. 5 to 7.
5) Figures to the right indicate full marks.

Q.1 Choose the correct answer from the given alternatives. **14**

1) Example of stem parasite disease is _____.
   a) Cuscuta b) Striga
   c) Orobanche d) All of these

2) Striga species is the examples of _____parasite.
   a) Stem b) Root
   c) Leaves d) Both a and b

3) Fruit rot is the most common disease in _____.
   a) Japan b) Australia
   c) India d) China

4) Leaf spot is the example of _____disease.
   a) Fungal b) Viral
   c) Nematodes d) Mycoplasma

5) White rust of crucifers disease caused by _____*candida*.
   a) *Xanthomonas* b) *Hibiscus*
   c) *Ustilago* d) *Albugo*

6) Root knot of vegetables crops caused by _____ *japanica*.
   a) *Meloidogyne* b) *Hibiscus*
   c) *Sphacelotheca* d) *Mycoplasma*

7) Citrus canker is the major disease of citrus in _____
   a) Jawa b) Thailand
   c) Indonesia d) Korea

8) Little leaf of brinjal control with the help of _____.
   a) Tetracyclines b) Pentacyclines
   c) Hexacyclines d) None of these

9) Example of algal disease is _____rust.
   a) Blue b) Brown
   c) Black d) Red

10) TMV is the example of ____disease.
   a) Viral b) Bacterial
   c) Mycoplasma d) Fungal

11) The defense mechanism of plants against pathogens divides into _____ categories.
   a) Five b) Two
   c) Three d) Six

12) The examples of mechanism of infection are _____.
   a) Prepenetration b) Penetration
   c) Postpenetration d) All of these

13) When epiphytotics become prevent throughout a country, continent or the world the disease may be called_____.
   a) Pandemic b) Endemic
   c) Epidemic d) None of these

14) _____and accurate diagnosis of disease is necessary before proper control measures.
   a) Slow b) Rapid
   c) Both a and b d) All of these

Q.2 **a)** Explain the classification of plant diseases based on pathogen. **07**
b) Describe the rust disease studied by you. **07**

Q.3 **a)** Describe the disease forecasting and crop loss studied by you. **07**
b) Explain the symptoms, causal organism, disease cycle and control measures of downy mildew of bajara. **07**

Q.4 **a)** Describe the genetic resistance studied by you. **07**
b) Explain the classification and morphology of MLO. **07**

Q.5 **a)** Describe the symptoms, causal organism and control measures of BMV. **05**
b) Give the symptoms, causal organism and control measures of GSD. **05**
c) Write a note on systematic acquired resistance studied by you. **04**

Q.6 **a)** Explain the role of environmental factors on disease development. **05**
b) Describe the symptoms, causal organism and control measures of white rust of crucifers. **05**
c) Write a note on seed borne pathogens. **04**

Q.7 **Write notes on any three.** **14**
a) Club root
b) Protection
c) Concept of plant disease
d) Exclusion

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Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Agrochemicals And Pest Management
BIOTECHNOLOGICAL ASPECTS IN PLANT PROTECTION – I

Time: 2½ Hours Max. Marks: 70

Instructions: 1) All Sections are compulsory.
2) Attempt any two questions from section – II and III.
3) Figure to right indicate full marks.
4) All questions carry equal marks.
5) Section – I (Q.1) is compulsory.

Section – I

Q.1 Objective type: **14**

1) Botanical name of Wheat _____.
   a) *Hordeum vulgare* Linn. b) *Triticum aestivum* Linn.
   c) *Sorghum vulgare* (L.) Moench d) *Oryza sativa* Linn.

2) Botanical name of sugarcane is _____.
   a) *Oryza sativa* Linn. b) *Triticum aestivum* Linn.
   c) *Arachis hypogaea* Linn. d) *Saccharum officinarum*

3) Tomato belongs to the _____ Family.
   a) Solanaceae b) Convolvulaceae
   c) Acanthaceae d) Anacardiaceae

4) Botanical name of Groundnut _____.
   a) *Hordeum vulgare* Linn. b) *Araches hypogaea* Linn.
   c) *Triticum aestivum* Linn. d) *Oryza sativa* Linn.

5) Vertical resistance is also called as _____.
   a) Strong resistance b) General resistance
   c) Weak resistance d) None of above

6) Laminar air flow is used in tissue culture for _____.
   a) Sterilization b) Inoculation
   c) Storage d) Nutrient medium

7) B.T. cotton is introduced to reduce the infestation of _____ pest.
   a) Boll worm b) Cotton jassid
   c) Cotton aphid d) Red cotton bug

8) The plant tissue culture technique is first introduced by _____.
   a) Habertlant b) Bonner
   c) Hanning d) Gautheret

9) Most plant tissue culture are initiated.
   a) Calluses b) Explants
   c) Protoplast d) Anther

10) Organogenesis is _____ in tissue culture technique.
   a) Callus formation b) Organ formation
   c) Disease formation d) None of above

11) An ability of a plant cell by virtue of which it can generate whole plant under suitable conditions is called _____.
   a) Micropropagation b) Totipotency
   c) Somatic hybridization d) Organogenesis

12) Structure involved in genetic engineering is _____.
   a) Codon b) Scissors
   c) Plastids d) Plasmid

13) Bt gene is developed in cotton for control of bollworm the bacteria is _____.
   a) Soil born b) Air born
   c) Both d) None of these

14) Genetic engineering is _____.
   a) Addition or removal of genes b) Plastic surgery
   c) Study of extra nuclear genes d) All of the above

Section – II

Q.2	**A)**	Give an account of cultivation practices of Wheat with respect to soil and climate, seed rate, sowing, varieties and fertilizer.	**07**
	B)	Give an account of cultivation practices of Tur with respect to soil and climate, seed rate, sowing varieties and fertilizer.	**07**
Q.3	**A)**	Indian seed act 1966	**07**
	B)	Seed legislation	**07**
Q.4	**A)**	What is meant by genetic resistance to pest?	**07**
	B)	Horizontal and vertical resistance of plant	**07**

Section – III

Q.5	**A)**	Describe the anther culture technique.	**05**
	B)	Protoplast isolation	**05**
	C)	Organogenesis	**04**
Q.6	**A)**	Recombinant DNA technology.	**05**
	B)	Technique of development of GM plants.	**05**
	C)	Bt methodology in production of transgenic plants.	**04**
Q.7	**A)**	Fertilizer requirements of Pomegranate.	**05**
	B)	Plant protection measure of cabbage.	**05**
	C)	Backcross method of plant breeding.	**04**

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Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Nanotechnology
GREEN MANUFACTURING TECHNOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Part-I, Question 1 is compulsory.
2) Attempt any four questions from part-II
3) Figures to the right indicate full marks.
4) Answer to the Part-I and Part-II are to be written in same answer Booklet only.

Part – I

Q.1 A) Rewrite the sentence after choosing the correct answer from the given alternatives. **07**

1) Polyester is a category of _____ that contain the ester functional group in their main chain.
   a) Monomer b) Polymer
   c) Dimer d) Tetramer

2) _____are organic polymer of high molecular mass but they often contain another substance.
   a) Metals b) Non metals
   c) Plastic d) Compounds

3) _____management relates to saving power in business, public-sector/government organizations, and homes.
   a) Waste b) Energy
   c) Solid waste d) Air emission

4) _____wastes are generated from farming activities.
   a) Biomedical b) E-waste
   c) Agricultural d) Industrial

5) Compliance with _____is one of the conditions of certification of a Product manufacture by green seal.
   a) Standards b) Sub standards
   c) Values d) Morals

6) The container must be chemically_____ with the material it will hold.
   a) Inert b) Incompatible
   c) Ignitable d) Reactive

7) _____chemistry is also known as sustainable chemistry.
   a) Green b) Inorganic
   c) Organic d) Analytical

B) Define the following terms: **07**

1) Lithography
2) Logistics
3) Radioactive waste
4) Composting
5) Bioplastic
6) Nanocomposites
7) Polyhyrdroxy alkanaotes

Part – II

Answer any four of the following:

Q.2 Describe green manufacturing initiatives in semi-conductor industry. **14**

Q.3 Give a detailed account of supply chain and green logistic networks for green manufacturing. **14**

Q.4 Give a detailed account of alternative energy sources. **14**

Q.5 Describe life cycle analysis of an industrial product and the steps involved in it. **14**

Q.6 **Write short notes on Any two:** **14**

a) Green manufacturing in automotive industry.
b) Environmental business management.
c) By-product synergy

Q.7 **Explain in detail about any two** **14**

a) Disposal of solid waste
b) Bioplastics
c) Waste recycling

SLR-UW-37

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Microbiology
BIOINFORMATICS & BIOSTATISTICS

Time: 2½ hours Max. Marks: 70

Instructions: 1) Part – I, Question 1 is compulsory.
2) Attempt any 4 question from Part II.
3) Figures to the right indicate full marks.
4) Answer to the Part I and Part II are to be written in same answer booklet only.

Part - I

Q.1 Rewrite the sentence by choosing correct alternative from the following: 14

1) The fundamental statistical indicators are _____.
   a) Mean & standard deviation b) Median
   c) Variance d) Mode

2) _____ is a measure of central tendency which is least affected by extreme values.
   a) Mean b) Mode
   c) H. M. d) Median

3) If the average of a series of values is 10 and their variance is 4, then the coefficient of variation (= the ratio standard deviation/ average) is:
   a) 20% b) 40%
   c) 80% d) 10%

4) A clinical trial is more valuable when _____.
   a) Sensitivity and Specificity have higher values
   b) Sensitivity is higher than specificity
   c) Specificity is higher than Sensitivity
   d) None of these

5) If a series of values consists of 21 numbers, then, for finding the median, we ordered the series ascending and we use _____.
   a) The 11^{th} value in the ordered series
   b) The mean between the 10^{th} and 11^{th} values
   c) The mean between the 11^{th} & 12^{th} values
   d) The 10^{th} values in the ordered series

6) The median of a series of numerical values is _____.
   a) Equal to the average b) A graph or hart
   c) A number d) A frequency table

7) _____ is computational structure prediction method.
   a) X-ray crystallography b) NMR
   c) Homology modeling d) None of these

8) EMBL is maintained by _____.
   a) European Bioinformatics Institute b) NCBI
   c) National Library of Medicine d) NIH

9) Fly base is a _____.
   a) Biodiversity database
   b) Model organism database
   c) Literature database
   d) Bimolecular database

10) The term bioinformatics was coined by _____.
   a) J D Watson
   b) Margaret Dayhoff
   c) Pauline Hogeweg
   d) Frederic Sanger

11) DNA microarray can be used to _____.
   a) Understand the gene expression
   b) Protein Structure prediction
   c) DNA Structure Prediction
   d) Store genome data

12) _____ is the branching graph used to represent eg: phylogenetic relationships or the clustering of microarray data.
   a) Micro dendogram
   b) Cladogram
   c) Phylogram
   d) Dendrogram

13) In a phylogenetic tree Root represents _____.
   a) Common ancestor
   b) Taxa
   c) Branching
   d) Species

14) Swiss-Port is a _____.
   a) Nucleic acid sequence database
   b) Structure database
   c) Protein sequence database
   d) Composite database

Part : II

Answer any four questions from the following

Q.2 What is Bioinformatics? Discuss application of Bioinformatics in various fields. **14**

Q.3 Write an essay on measures of central tendency and dispersion. **14**

Q.4 What is Biostatistics? Discuss applications of Biostatistics in various biological fields. **14**

Q.5 **Write short answer (any two)** **14**
a) Give a detailed account on nucleic acid databases.
b) Explain correlation methods.
c) Explain factorial experiment.

Q.6 **Write short notes on any two:** **14**
a) Briefly explain Maximum Parsimony Method.
b) Explain in detail histograms with suitable examples.
c) Give the application of binomial, normal and poisson distribution.

SLR-UW-39

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Geography
REGIONAL GEOGRAPHY OF INDIA

Time: 2½ Hours Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of stencils is allowed.
4) Draw neat diagrams wherever necessary.

Q.1 A) Complete the following sentence by choosing correct alternative given below. **07**

1) Andaman- Nicobar Islands are located in_____
   a) Arabian sea b) Bay of Bengal
   c) Indian Ocean d) Red sea

2) The planning Commission divided India into_____ agro-climatic regions.
   a) 5 b) 7
   c) 15 d) 12

3) _____state has the largest reserves of coal in India.
   a) Jharkhand b) Maharashtra
   c) West Bengal d) Karnataka

4) The region is delineated on the basis of climatic feature are known as_____ region.
   a) Physical b) Historical
   c) Demographic d) Cultural

5) _____is the capital of Uttaranchal.
   a) Ranchi b) Raipur
   c) Dehradun d) Nainital

6) TISCO steel plant is established in the _____
   a) Asansol b) Jamshedpur
   c) Bokaro d) Kolar

7) Sunderban Delta Region is famous for _____production.
   a) Rice b) Sugarcane
   c) Jute d) Cotton

B) Fill in the blanks: **07**

1) _____is the oldest range of the Himalayas.
2) ____regions a smallest of all planning region.
3) Krishna is the _____flowing River in India.
4) The first cotton Textile industry was established India in_____
5) The Deccan Plateau is mostly covered by _____soil.
6) ____crops grown in the highest area in India.
7) Chhattisgarh carried out of _____state.

Q.2 Describe in detail the types of Natural Vegetation in India. **14**

Q.3 Describe the major industrial regions of India. **14**

OR

As a case study give an account of Coastal Plain region in India.

Q.4 **Write short answers for the following questions. (any two)** **14**

a) Give an account of sugarcane Production in India.

b) Write a geographical essay on Jharkhand State.

c) Describe in short the cotton textile industries in India.

d) Describe in short the Agro-Climatic regions of India.

Q.5 **Write short notes. (any two)** **14**

a) Manganese Production in India.

b) Location of India

c) The concept of Meso regions

d) Canals irrigation in India.

(मराठी रूपांतर)

सुचना: 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक गुण दर्शवतात.
3) आवश्यक तेथे सुबक आकृत्या काढा.
4) नकाशा स्टेनसिलचा वापर करण्यास परवानी आहे.

प्र.1 अ) योग्य पर्याय निवडा व उत्तरे लिहा: **07**

1. अंदमान–निकोबार व्दीपसमूह (बेट) –––स्थित आहे.
   अ) अरबी समुद्रात ब) बंगालच्या उपसागरात
   क) हिंदी महासागरात ड) तांबडा समुद्र

2. भारतीय नियोजन आयोगाने भारताचे कृषी–हवामान विषयक ––– विभाग पाडलेले आहेत.
   अ) 5 ब) 7
   क) 15 ड) 12

3. भारतात कोळशाचा सर्वात जास्त साठा –––––राज्यात आहे.
   अ) झारखंड ब) महाराष्ट्र
   क) पश्चिम बंगाल ड) कर्नाटक

4. हवामान वैशिष्टयानुसार वर्णनीत केलेल्या विभागास –––––असे म्हणतात.
   अ) प्राकृतिक ब) ऐतिहासिक
   क) लोकसंख्याशास्त्रीय ड) सांस्कृतिक

5. ––––––ही उत्तरांचल राज्याची राजधानी आहे.
   अ) रांची ब) रायपूर
   क) डेहराडून ड) नैनिताल

6. टिस्को (TISCO) स्टील प्लॅन्ट –––येथे स्थापित आहे.
   अ) असनसोल ब) जमशेदपूर
   क) बोकारो ड) कोलार

7. सुंदरबन त्रिभूज प्रदेश –––––उत्पादनासाठी प्रसिध्द आहे.
   अ) तांदूळ ब) ऊस
   क) ताग ड) कापूस

ब. गाळलेल्या जागा भरा. **07**

1. ––––––हि हिमालयातील सर्वात प्राचीन रांग आहे.
2. ––––––विभाग प्रादेशिक नियोजनाचा सर्वात लहान विभाग आहे.
3. भारतातील कृष्णा ही ––––––वाहती नदी आहे.
4. भारतातील पहिली सुती कापडगिरणी ––––––येथे उभारण्यात आली.
5. दख्खनचे पठार हे मुख्यतः –––––प्रकारच्या मृदेने आच्छादित आहे.
6. भारतामध्ये –––––हे पिक सर्वात जास्त क्षेत्रात घेतले जाते.
7. छतीसगड राज्याची निर्मिती ––––––राज्यातून झाली आहे.

प्र.2 भारतातील नैसर्गिक वनस्पतीचे प्रकार सविस्तर वर्णन करा **14**

प्र.3 भारतातील प्रमुख औदयोगिक प्रदेशाचे वर्णन करा. **14**

किंवा

भारतातील किनारपट्टी मैदानी प्रदेशाचा एक विशेष अभ्यास म्हणून माहिती लिहा.

प्र.4 थोडक्यात उत्तरे लिहा (कोणतेही दोन) **14**

1. भारतातील ऊस उत्पादनाचा थोडक्यात आढावा घ्या.
2. झारखंड राज्यावर भौगोलिक निबंध लिहा.
3. भारतातील सुती वस्त्रोद्योगाचे थोडक्यात वर्णन करा.
4. भारतातील कृषी हवामान प्रदेशाचे थोडक्यात वर्णन करा.

प्र.5 थोडक्यात टिपा लिहा (कोणतेही दोन) **14**

1. भारतातील मँगनीजचे उत्पादन
2. भारताचे स्थान
3. मेसो (meso) प्रदेशाची संकल्पना / मध्यम (meso) प्रदेशाची संकल्पना
4. भारतातील कालवा सिंचन

SLR-UW-40

Seat No.	

Set P

M.Sc. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Geography
GEOGRAPHY OF MAHARASHTRA

Time: 2½ Hours Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) All questions carry equal marks
3) Use of stencils is allowed.
4) Draw neat diagrams wherever necessary.

Q.1 A) Choose the correct alternative given in the bracket and fill in the blanks. **07**

1) _____types of soil majorly found in konkan region.
a) Black b) Laterite c) Sandy

2) _____river flow in Solapur district in Maharashtra.
a) Krishna b) Ulhas c) Bhima

3) _____is the major natural port of Maharashtra.
a) Mumbai b) Ratnagiri c) Malvan

4) _____major mineral resources found in Kolhapur district.
a) Iron-ore b) Manganese c) Bauxite

5) Major Rice production takes place in _____ region of Maharashtra.
a) Marathwada b) Konkan c) Khandesh

6) The highest production of sugarcane takes place in _____district.
a) Kolhapur b) Solapur c) Hingoli

7) Pune is known as _____city of Maharashtra.
a) Religious b) Trade c) Industry

B) Fill in the blanks: **07**

1) _____is longest river in konkan region.
2) Bhimashankar peak is located in _____district.
3) Jaikwadi dam is located on _____river.
4) Sanjay Gandhi National Park is situated in the _____city.
5) _____types of soil is majorly found in Deccan plateau in Maharashtra.
6) _____is the capital of Maharashtra.
7) _____is famous production of textile in solapur district.

Q.2 Describe in detail account of physical regions of Maharashtra. **14**

Q.3 Explain in detail vegetation of Maharashtra. **14**

OR

State the types of iron-ore and explain the distribution and production of iron-ore in Maharashtra.

Q.4 Write short answers for the following questions. (any two) **14**

a) Explain the drainage pattern of Maharashtra.

b) Describe the distribution of Bauxite in Maharashtra.

c) Write on distribution and production of petroleum in Maharashtra.

d) State major sources of irrigation in Maharashtra.

Q.5 Write short notes. (any two) **14**

a) Types of soil in Maharashtra.

b) Climatic region of Maharashtra.

c) Location of Maharashtra.

d) Tourism centers of Maharashtra.

(मराठी रूपांतर)

सुचनाः 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक गुण दर्शवतात.
3) आवश्यक तेथे सुबक आकृत्या काढा.
4) स्टेनसिलचा वापर करण्यास परवानी आहे.

प्र.1 अ) योग्य पर्याय निवडा व उत्तरे लिहाः **07**

1. कोंकण प्रदेशामध्ये प्रामुख्याने ––– प्रकारची माती आढळते.
   अ) काळी ब) जंभी क) वाळवंटी
2. महाराष्ट्रातील सोलापूर जिल्हयातून ––– नदी वाहते.
   अ) कृष्णा ब) उल्हास क) भीमा
3. महाराष्ट्राचे प्रमुख नैसर्गिक ––– बंदर आहे.
   अ) मुंबई ब) रत्नागिरी क) मालवण
4. कोल्हापूर जिल्हयात ––– प्रमुख खनिज संपत्ती आढळते.
   अ) लोह खनिज ब) मंगेनीज क) अभ्रक
5. तांदळाचे प्रमुख उत्पादन महाराष्ट्राच्या ––– प्रदेशात घेतले जाते.
   अ) मराठवाडा ब) कोंकण क) खानदेश
6. ––– जिल्हयामध्ये सर्वाधिक ऊसाचे उत्पादन घेतले जाते.
   अ) कोल्हापूर ब) सोलापूर क) हिंगोली
7. महाराष्ट्रात पुणे शहर ––– म्हणून ओळखले जाते.
   अ) धार्मिक ब) व्यापारी क) औद्योगिक

ब. गाळलेल्या जागा भरा. **07**

1. कोंकण प्रदेशामध्ये ––– सर्वाधिक लांब नदी आहे.
2. ––– जिल्हयामध्ये भीमाशंकर शिखर आहे.
3. ––– नदीवर जायकवाडी धरण आहे.
4. संजय गांधी राष्ट्रीय उद्यान ––– शहरा मध्ये आहे.
5. महाराष्ट्राच्या दखन पठारावर ––– प्रकारची माती आढळते.
6. ––– ही महाराष्ट्राची राजधानी आहे.
7. सोलापूर जिल्हया मध्ये –––––कापडाचे उत्पादन प्रसिध्द आहे.

प्र.2 महाराष्ट्राच्या प्राकृतिक विभागाचे सविस्तर वर्णन करा. **14**

प्र.3 महाराष्ट्रातील वनस्पतीचे सविस्तर वर्णन करा. **14**

किंवा

महाराष्ट्रातील लोह खनिजाचे प्रकार सांगून त्याचे वितरण व उत्पादन स्पष्ट करा.

प्र.4 थोडक्यात उत्तरे लिहा (कोणतेही दोन) **14**

1. महाराष्ट्राची जलप्रणाली स्पष्ट करा.
2. महाराष्ट्रातील अभ्रकाचे वितरण स्पष्ट करा.
3. पेट्रोलियमचे वितरण व उत्पादन लिहा.
4. महाराष्ट्रातील प्रमुख जलसिंचनाचे स्त्रोत सांगा.

प्र.5 थोडक्यात टिपा लिहा (कोणतेही दोन) **14**

1. महाराष्ट्रातील मातीचे प्रकार
2. महाराष्ट्रातील हवामानाचे विभाग
3. महाराष्ट्राचे स्थान
4. महाराष्ट्रातील पर्यटन केंद्रे

SLR-UW-43

Seat No.		Set	P

M.A. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
History and Archaeology
INDIAN TOURISM

Time: 2½ hours Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figure to right indicate full marks.

Q.1 Select appropriate word: **14**

1) The Brahaddeshwar Temple at Tanjore was built by king _____.
   a) Raviraja b) Ravivarma
   c) Ravikirti d) Rajraja

2) Tourism is the word originated from _____ language.
   a) English b) Roman
   c) French d) Latin

3) _____ is the world Heritage monument in Maharashtra.
   a) Bhaje b) Ajanta
   c) Karle d) Kanheri

4) Brahaddeshwar temple at Tanjore is famous for _____.
   a) Mandap b) Shikhara
   c) Garbhgriha d) Sculptures

5) National unity can be achieved by _____.
   a) Internal b) Individual
   c) Provincial d) External

6) Ajanta Ellora caves in Maharashtra are protected by _____.
   a) Tourism Department b) State archaeology
   c) Archaeological Survey if India d) Local bodies

7) Development of Tourism is the aim of _____ International organization.
   a) UNESCO b) W.H.O
   c) P.A.T.A d) I.T.D.C

Q.2 Write short notes of the following: (any four out of five) **14**

a) Eco tourism
b) Karle Caves
c) Soft Tourism
d) Konark Museum
e) P.A.T.A

Q.3 Write a short answers of the following: (any two out of three) **14**

a) State the cultural & political importance of tourism.
b) Give information about Bhaje caves.
c) Write a note on Aihole Museum.

Q.4 Answer any one of the following: **14**

Describe the features of Ellora caves & Kailas temple as a place tourist interest.

OR

Discuss the working of tourist departments of central & state government.

Q.5 Explain the definition & scope of tourism & discuss the importance of tourism in international relations. **14**

SLR-UW-46

Seat No.	

Set P

M.A. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Rural Development
WRITING COMMUNICATION SKILL AND CURRENT AFFAIRS

Time: 2½ Hours. Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple Choice Questions: (2 Marks Each) **14**

1) _____ is the component of the communication process.
   a) Feedback b) Noise
   c) Medium d) All of these

2) Internet started in year _____.
   a) Year 1951 b) Year 1969
   c) Year 1980 d) None of these

3) In E-mail E stands for _____.
   a) Electronic b) Electrical
   c) Easy d) None of these

4) Minutes is a part of _____.
   a) Meeting b) Agenda
   c) Both (a) and (b) d) None of these

5) Stylus is used for _____.
   a) Reading b) Listening
   c) Speaking d) None of these

6) _____ is the sources in communication process.
   a) Book b) Report
   c) Internet d) All of these

7) Bio data includes _____.
   a) Gender b) Experience
   c) Educational Qualification d) All of these

Q.2 Write short notes. (any four) **14**

a) Importance of Communication
b) Reading
c) Audio Visual Aids
d) Positive Thinking
e) Agenda

Q.3 Short Answer Type Questions. (any two) **14**

a) Draw a diagram of Communication Process and explain it.
b) Write down about speech therapy.
c) Write is e-mail?

Q.4 Descriptive Type Questions with internal choice: **14**

a) What is News? Give Example.

OR

b) What are the types of writing? Give Example.

Q.5 Write an essay on topic ‘Presentation Skill’. **14**

(मराठी रूपांतर)

सूचनाः 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक गुण दर्शवतात.

प्र.1 बहुपर्यायी प्रश्न (प्रत्येकी 2 गुण) **14**

1. ––– हे संवाद प्रक्रियेतील घटक आहे.
अ) प्रतिक्रिया ब) अडथळा
क) माध्यम ड) यापैकी सर्व

2. इंटरनेट ––– यावर्षी सुरू झाले.
अ) 1951 वर्षी ब) 1969 वर्षी
क) 1980 वर्षी ड) यापैकी नाही

3. E-mail मध्ये 'E' म्हणजे –––.
अ) इलेक्ट्रोनिक ब) इलेक्ट्रिकल
क) ईझी ड) यापैकी नाही

4. मिनिट्स हा ––– भाग आहे.
अ) मिटिंग ब) अजेंडा
क) दोन्ही a) आणि b) ड) यापैकी नाही

5. स्टायलस हे ––– साठी वापरले जाते.
अ) वाचन ब) ऐकणे
क) बोलणे क) यापैकी नाही

6. ––– हे संवाद प्रक्रियेतील स्त्रोत आहे.
अ) पुस्तक ब) अहवाल
क) इंटरनेट ड) यापैकी सर्व

7. बायोडाटामध्ये ––– चा समावेश होतो.
अ) लिंग ब) अनुभव
क) शैक्षणिक पात्रता ड) यापैकी सर्व

प्र.2 संक्षिप्त टिपा लिहा. (कोणतेही चार) **14**

1. संवादाचे महत्व
2. वाचन
3. दृकश्राव्य साधने
4. सकारात्मक विचार
5. अजेंडा

प्र.3 लघुत्तरी प्रश्न. (कोणतेही दोन) **14**

1. संवादाच्या प्रक्रियेची आकृती काढा आणि स्पष्ट करा.
2. स्पीच थेरपी विषयी लिहा.
3. ई–मेल म्हणजे काय?

प्र.4 दिर्घोतरी प्रश्न अंतर्गत पर्यायासह. **14**

1. बातमी म्हणजे काय? उदाहरणे द्या.

अथवा

2. लेखनाचे प्रकार कोणते आहेत? उदाहरणे द्या.

प्र.5 'सादरीकरण कौशल्य' या विषयावर निबंध लिहा. **14**

SLR-UW-48

Seat No.	

Set P

M.A. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Mass Communication
WRITING AND COMMUNICATION SKILL

Time: 2½ Hours. Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple Choice Questions: (2 Marks Each) **14**

1) _____ is the component of the communication process.
   a) Feedback b) Noise
   c) Medium d) All of these

2) Internet started in year _____.
   a) Year 1951 b) Year 1969
   c) Year 1980 d) None of these

3) In E-mail E stands for _____.
   a) Electronic b) Electrical
   c) Easy d) None of these

4) Minutes is a part of _____.
   a) Meeting b) Agenda
   c) Both (a) and (b) d) None of these

5) Stylus is used for _____.
   a) Reading b) Listening
   c) Speaking d) None of these

6) _____ is the sources in communication process.
   a) Book b) Report
   c) Internet d) All of these

7) Bio data includes _____.
   a) Gender b) Experience
   c) Educational Qualification d) All of these

Q.2 Write short notes. (any four) **14**

a) Importance of Communication
b) Reading
c) Audio Visual Aids
d) Positive Thinking
e) Agenda

Q.3 Short Answer Type Questions. (any two) **14**

a) Draw a diagram of Communication Process and explain it.
b) Write down about speech therapy.
c) Write is e-mail?

Q.4 Descriptive Type Questions with internal choice: **14**

a) What is News? Give Example.

OR

b) What are the types of writing? Give Example.

Q.5 Write an essay on topic ‘Presentation Skill’. **14**

(मराठी रूपांतर)

सूचनाः 1) सर्व प्रश्न अनिवार्य आहेत.
2) उजवीकडील अंक गुण दर्शवतात.

प्र.1 बहुपर्यायी प्रश्न (प्रत्येकी 2 गुण) **14**

1. ––– हे संवाद प्रक्रियेतील घटक आहे.
अ) प्रतिक्रिया ब) अडथळा
क) माध्यम ड) यापैकी सर्व

2. इंटरनेट ––– यावर्षी सुरू झाले.
अ) 1951 वर्षी ब) 1969 वर्षी
क) 1980 वर्षी ड) यापैकी नाही

3. E-mail मध्ये 'E' म्हणजे –––.
अ) इलेक्ट्रोनिक ब) इलेक्ट्रिकल
क) ईझी ड) यापैकी नाही

4. मिनिट्स हा ––– भाग आहे.
अ) मिटिंग ब) अजेंडा
क) दोन्ही a) आणि b) ड) यापैकी नाही

5. स्टायलस हे ––– साठी वापरले जाते.
अ) वाचन ब) ऐकणे
क) बोलणे क) यापैकी नाही

6. ––– हे संवाद प्रक्रियेतील स्त्रोत आहे.
अ) पुस्तक ब) अहवाल
क) इंटरनेट ड) यापैकी सर्व

7. बायोडाटामध्ये ––– चा समावेश होतो.
अ) लिंग ब) अनुभव
क) शैक्षणिक पात्रता ड) यापैकी सर्व

प्र.2 संक्षिप्त टिपा लिहा. (कोणतेही चार) **14**

1. संवादाचे महत्व
2. वाचन
3. दृकश्राव्य साधने
4. सकारात्मक विचार
5. अजेंडा

प्र.3 लघुत्तरी प्रश्न. (कोणतेही दोन) **14**

1. संवादाच्या प्रक्रियेची आकृती काढा आणि स्पष्ट करा.
2. स्पीच थेरपी विषयी लिहा.
3. ई–मेल म्हणजे काय?

प्र.4 दिर्घोतरी प्रश्न अंतर्गत पर्यायासह. **14**

1. बातमी म्हणजे काय? उदाहरणे द्या.

अथवा

2. लेखनाचे प्रकार कोणते आहेत? उदाहरणे द्या.

प्र.5 'सादरीकरण कौशल्य' या विषयावर निबंध लिहा. **14**

SLR-UW-52

Seat No.	

Set P

M.C.A. (OET) (Semester - II) (CBCS) Examination Mar/Apr-2018
Science
OFFICE AUTOMATION

Time: 2½ hours Max. Marks: 70

Instructions: 1) Question no. 1 and 2 are compulsory.
2) Attempt any 3 questions from Q. no. 3 to Q. No. 7
3) Figures to the right indicate full marks.

Q.1 A) Choose correct alternatives: **10**

1) _____ is disadvantage of computer.
   a) Dependency b) Diligence
   c) Accuracy d) Versatility

2) Text – styling feature of MS word is _____.
   a) WordColor b) Word Font
   c) WordArt d) Word Fill

3) The basic unit of a worksheet into which you enter data in Excel is called a _____.
   a) Cell b) table
   c) box d) column

4) Which of the following creates a drop down list of values to choose from _____?
   a) Ole Object b) Hyperlink
   c) Memo d) Lookup Wizard

5) Which one can be used as watermark in a word document _____.
   a) Text b) Image
   c) Both A and B d) None of these

6) _____ was used in second generation of computers.
   a) Transistors b) Vacuum Tubes
   c) Integrated Circuit based d) VLSI

7) In Excel, Columns are labelled as _____.
   a) A, B, C, etc b) 1,2,3 etc
   c) A1, A2, etc d) A1, A2, etc

8) To edit a chart, we can _____.
   a) Double click the chart object
   b) Click and drag the chart object
   c) Triple click the chart object
   d) Click the chart object

9) Which of the following is not a font style _____?
   a) Bold b) Italics
   c) Regular d) Superscript

10) To print PowerPoint presentation, Press _____.
   a) Ctrl + A b) Ctrl + Shift + P
   c) Ctrl + P d) CTRL + S

B) Fill in the blanks or true / False: **04**

1) Selecting a table and pressing the Del key will delete a table.
2) It is possible to protect an Excel sheet using password.
3) MS Power Point is a spread sheet program.
4) In MS access, every table must have a primary key.

Q.2 A) Write short notes on the following: **08**

1) Media Clips in PowerPoint
2) Keyboard Accelerators.

B) Answer the following: **06**

1) Explain Alignments.
2) Explain Computer hardware.

Q.3 Answer the following: **14**

A) Difference between Pivot Table and Regular Table.
B) Explain Advantages and Disadvantages of computer.

Q.4 Answer the following: **14**

A) What is the use of MS Access? Explain Access Database.
B) Explain Table properties in MS Word.

Q.5 Answer the following: **14**

A) Explain Top/Bottom Rules in conditional formatting.
B) Explain important features of MS PowerPoint?

Q.6 Answer the following: **14**

A) Explain Animation Menu in detail.
B) Explain illustration Group in insert menu.

Q.7 Answer the following: **14**

A) Define Computer. Explain Applications of computer.
B) Define Mail merge. What is procedure of create mail merge in MS Word.