

**GATE BT Previous Year Solved Question Papers** 

# G.A.T.E. (BT) 2012 BIOTECHNOLOGY

## Examination

(Original Question Paper with Answer Key)
GRADUATE APTITUDE TEST IN ENGINEERING



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#### **BT: BIOTECHNOLOGY**

Duration: Three Hours

Maximum Marks: 100

#### Read the following instructions carefully.

- 1. Do not open the seal of the Question Booklet until you are asked to do so by the invigilator.
- 2. Take out the Optical Response Sheet (ORS) from this Question Booklet without breaking the seal and read the instructions printed on the ORS carefully.
- 3. On the right half of the **ORS**, using ONLY a **black ink ball point pen**, (i) darken the bubble corresponding to your test paper code and the appropriate bubble under each digit of your registration number and (ii) write your registration number, your name and name of the examination centre and put your signature at the specified location.
- 4. This Question Booklet contains **16** pages including blank pages for rough work. After you are permitted to open the seal, please check all pages and report discrepancies, if any, to the invigilator.
- 5. There are a total of 65 questions carrying 100 marks. All these questions are of objective type. Each question has only **one** correct answer. Questions must be answered on the left hand side of the **ORS** by darkening the appropriate bubble (marked A, B, C, D) using ONLY a **black ink ball point pen** against the question number. **For each question darken the bubble of the correct answer**. More than one answer bubbled against a question will be treated as an incorrect response.
- 6. Since bubbles darkened by the black ink ball point pen **cannot** be erased, candidates should darken the bubbles in the ORS **very carefully**.
- 7. Questions Q.1 Q.25 carry 1 mark each. Questions Q.26 Q.55 carry 2 marks each. The 2 marks questions include two pairs of common data questions and two pairs of linked answer questions. The answer to the second question of the linked answer questions depends on the answer to the first question of the pair. If the first question in the linked pair is wrongly answered or is unattempted, then the answer to the second question in the pair will not be evaluated.
- 8. Questions Q.56 Q.65 belong to General Aptitude (GA) section and carry a total of 15 marks. Questions Q.56 Q.60 carry 1 mark each, and questions Q.61 Q.65 carry 2 marks each.
- 9. Unattempted questions will result in zero mark and wrong answers will result in **NEGATIVE** marks. For all 1 mark questions, ½ mark will be deducted for each wrong answer. For all 2 marks questions, ½ mark will be deducted for each wrong answer. However, in the case of the linked answer question pair, there will be negative marks only for wrong answer to the first question and no negative marks for wrong answer to the second question.
- 10. Calculator is allowed whereas charts, graph sheets or tables are **NOT** allowed in the examination hall.
- 11. Rough work can be done on the question paper itself. Blank pages are provided at the end of the question paper for rough work.
- 12. Before the start of the examination, write your name and registration number in the space provided below using a black ink ball point pen.

Name					
Registration Number	BT				

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# 2012 **Q. 1 – Q. 25 carry one mark each.**

Q.1	In mismatch correction repair, the parental DNA strand is distinguished from the daughter strand by							
	(A) acetylation	(B) phosphorylation	(C) methylation	(D) glycosylation				
Q.2	The basis for blue-white screening with pUC vectors is							
	<ul><li>(A) intraallelic com</li><li>(C) intragenic supp</li></ul>	_	<ul><li>(B) intergenic complementation</li><li>(D) extragenic suppression</li></ul>					
Q.3	Idiotypic determina	ants of an antibody are asso	ociated with the					
	<ul><li>(A) constant region</li><li>(C) variable region</li></ul>	of the heavy chains	<ul><li>(B) constant region of the light chains</li><li>(D) constant regions of light and heavy chains</li></ul>					
Q.4	Identification of blo	ood groups involves						
	<ul><li>(A) precipitation</li><li>(C) opsonization</li></ul>		<ul><li>(B) neutralization</li><li>(D) agglutination</li></ul>					
Q.5	B-lymphocytes orig	ginate from the bone marro	w whereas T-lymphoc	ytes originate from				
	(A) thymus	(B) bone marrow	(C) spleen	(D) liver				
Q.6	A humanized antibo	ody is one in which the						
	<ul><li>(B) heavy chain is f</li><li>(C) light chain is free</li></ul>	chains are from human from human and light chair om human and heavy chair mouse, and the rest is from	n is from mouse					
Q.7	Dimethyl sulfoxide	(DMSO) is used as a cryo	preservant for mamma	lian cell cultures because				
	<ul><li>(A) it is an organic</li><li>(B) it easily penetra</li><li>(C) it protects cells</li><li>(D) it is also utilize</li></ul>	ites cells by preventing crystallizati	on of water					
Q.8	Nude mice refers to	)						
	<ul><li>(A) mice without sk</li><li>(C) knockout mice</li></ul>	kin	(B) mice without the (D) transgenic mice	ymus				
Q.9	Heat inactivation of	f serum is done to inactivate	te					
	(A) prions	(B) mycoplasma	(C) complement	(D) pathogenic bacteria				
Q.10	Choose the correct	signal transduction pathwa	ay.					
	<ul> <li>(A) Hormone → 7 TM receptor → G protein → cAMP → PKA</li> <li>(B) Hormone → G protein → 7 TM receptor → cAMP → PKA</li> <li>(C) Hormone → 7 TM receptor → G protein → PKA → cAMP</li> <li>(D) Hormone → 7 TM receptor → cAMP → G protein → PKA</li> </ul>							

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Q.11	A protein is phosphorylated at a serine residue. A phosphomimic mutant of the protein can be generated by substituting that serine with									
	(A) glycine	(B) alanine	(C)	aspart	ate		(D)	threoni	ne	
Q.12	.12 A truncated polypeptide is synthesized due to a nonsense mutation. Where another mutation to obtain a full-length polypeptide?						e would	l you i	introduce	
	<ul><li>(A) Ribosomal protein gene</li><li>(C) DNA repair gene</li></ul>			<ul><li>(B) Transfer RNA gene</li><li>(D) Ribosomal RNA gene</li></ul>						
Q.13	Protein-DNA interaction	ons <i>in vivo</i> can be studie	ed by							
	<ul><li>(A) gel shift assay</li><li>(C) chromatin immuno</li></ul>	pprecipitation assay	<ul><li>(B) Southern hybridization</li><li>(D) fluorescence <i>in situ</i> hybridization assay</li></ul>							
Q.14	The direction of shell of	coiling in the snail <i>Limn</i>	аеа ре	eregra	is a	classic e	examp	ole of		
	(A) chromosomal inhe (C) chromosomal trans					nosomal s recom				
Q.15	During photorespirate 1,5- bisphosphate to yi	ion under low CO <sub>2</sub> eld	and	high	$O_2$	levels,	$O_2$	reacts	with	ribulose
	<ul> <li>(A) one molecule each of 3-phosphoglycerate and 2-phosphoglycolate</li> <li>(B) two molecules of 3-phosphoglycerate</li> <li>(C) two molecules of 2-phosphoglycolate</li> <li>(D) one molecule each of 3-phosphoglycerate and glyoxylate</li> </ul>									
Q.16	Which one of the follo	wing is <b>NOT</b> a protopla	ast fusi	ion ind	lucin	g agent?	?			
	<ul><li>(A) Inactivated Sendai virus</li><li>(C) Polyethylene glycol</li></ul>			<ul><li>(B) Ca<sup>2+</sup> at alkaline pH</li><li>(D) Colchicine</li></ul>						
Q.17	The activity of an en enzyme activity is Kat	-	International Units (IU). However, the S.I. unit for			unit for				
	(A) $1.66 \times 10^4 \text{ IU}$	(B) 60 IU	(C)	6 × 10	<sup>7</sup> IU		(D)	10 <sup>6</sup> IU		
Q.18	Identify the statement	that is <b>NOT</b> applicable t	to an e	enzyme	e cata	alyzed re	eactio	n.		
	<ul> <li>(A) Enzyme catalysis involves propinquity effects</li> <li>(B) The binding of substrate to the active site causes a strain in the substrate</li> <li>(C) Enzymes do not accelerate the rate of reverse reaction</li> <li>(D) Enzyme catalysis involves acid-base chemistry</li> </ul>									
Q.19	An example of a derive	ed protein structure data	ıbase i	S						
	(A) Pfam	(B) SCOP	(C)	GEO			(D)	Prosite		
Q.20	An example of a progr	am for constructing a pl	hyloge	netic t	ree is	S				
	(A) phylip	(B) phrap	(C) j	prodor	n		(D)	PHDsec	;	
Q.21	Synteny refers to									
	<ul> <li>(A) gene duplication from a common ancestor</li> <li>(B) a tree representation of related sequences</li> <li>(C) the extent of similarity between two sequences</li> <li>(D) local conservation of gene order</li> </ul>									

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012						DIOTECTIVOLOGI D		
Q.22	While	searching a data	base for similar	sequences, E	value does <b>N</b> (	OT depend on the		
		quence length oring system			•	uences in the database om a normal distribution		
Q.23	In tran with	smission electro	on microscopy, e	lectron opacit	y is greatly e	nhanced by treating the specimen		
	. ,	rous ammonium lium chloride	n sulfate	<ul><li>(B) uranium acetate</li><li>(D) basic fuchsin</li></ul>				
Q.24	The me	olarity of water	in a water : ethar	nol mixture (1:	mixture (15:85, v/v) is approximately			
	(A) 0.85 (C) 8.5			(B) 5 (D) 5				
Q.25	The helix content of a protein can be determ			etermined usin	ıg			
	<ul><li>(A) an infrared spectrometer</li><li>(C) a circular dichroism spectrometer</li></ul>				spectrometer spectrophotometer			
Q. 26 1	to Q. 5	5 carry two	marks each.					
Q.26	Which	one of the follo	wing DNA seque	ences carries a	ın invert repe	at?		
	TP	rgagccccgag Actcggggctc	AT		ATGAGCCGG	GAGAT		
		rgagccgagcc ctcggctcgga			ATGAGCCTA FACTCGGAT.			
Q.27	In zinc	finger proteins,	, the amino acid i	residues that c	oordinate zin	c are		
	(A) Cy	s and His		(B) A	(B) Asp and Glu			
	(C) Ar	g and Lys		(D) A	(D) Asp and Arg			
Q.28	Match	the entries in G	roup I with thos	e in <b>Group II</b>	•			
	<u>Grou</u>	<u>ıp I</u>		Gr	oup II			
	P. Q. R. S.	MTT Annexin V Methotrexate Taxol		1. 2. 3. 4.	•			
		3, Q-1, R-4, S-2 2, Q-3, R-4, S-1			P-2, Q-4, R-1, P-4, Q-2, R-1,			
Q.29	(DCW		growth rate (µ) is			evisiae, the cell density is 20 gl <sup>-1</sup> ake rate (v) is 16 gl <sup>-1</sup> h <sup>-1</sup> . The cell		
	(A) 0.	32	(B) 0.64	(C) (	0.80	(D) 0.50		
Q.30			DNA weighs 1.1 ntained in 1 μg of			picomoles of a plasmid vector of		
	(A) 0.3	30	(B) 0.55	(C) (	0.25	(D) 0.91		

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Q.31 Match the terms in **Group I** with the ploidy in **Group II**.

# Group II Group II

- (A) P-4, Q-2, R-3, S-1 (C) P-2, O-3, R-4, S-1 (D) P-1, O-4, R-3, S-2
- Q.32 What is the rank of the following matrix?

(A) 0

$$\begin{pmatrix}
5 & 3 & -1 \\
6 & 2 & -4 \\
14 & 10 & 0
\end{pmatrix}$$
(C) 2 (D) 3

Q.33 Match the products in **Group I** with the applications in **Group II**.

(B) 1

## Group II Group II

- P. Digoxin 1. Muscle relaxant Stevioside 2. Anti-cancer agent Q. R. Atropine 3. Cardiovascular disorder Vinblastine S. 4. Sweetener (A) P-1, Q-4, R-3, S-2 (B) P-3, Q-2, R-1, S-4
- (C) P-3, Q-4, R-1, S-2 (D) P-2, Q-3, R-1, S-4
- Q.34 Determine the correctness or otherwise of the following **Assertion** (a) and **Reason** (r).

**Assertion:** The production of secondary metabolites in plant cell cultures is enhanced by the addition of elicitors.

**Reason:** Elicitors induce the expression of enzymes responsible for the biosynthesis of secondary metabolites.

- (A) Both (a) and (r) are true but (r) is not the correct reason for (a)
- (B) Both (a) and (r) are true and (r) is the correct reason for (a)
- (C) (a) is true but (r) is false
- (D) (a) is false but (r) is true
- Q.35 Determine the correctness or otherwise of the following **Assertion** (a) and **Reason** (r).

**Assertion:** Plants convert fatty acids into glucose.

**Reason:** Plants have peroxisomes.

- (A) Both (a) and (r) are true but (r) is not the correct reason for (a)
- (B) Both (a) and (r) are true and (r) is the correct reason for (a)
- (C) (a) is true but (r) is false
- (D) (a) is false but (r) is true

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Q.36 Determine the correctness or otherwise of the following **Assertion** (a) and **Reason** (r).

**Assertion:** In direct somatic embryogenesis, embryos are developed without going through callus formation.

**Reason:** This is possible due to the presence of pre-embryonically determined cells.

- (A) Both (a) and (r) are true but (r) is not the correct reason for (a)
- (B) (a) is false but (r) is true
- (C) (a) is true but (r) is false
- (D) Both (a) and (r) are true and (r) is the correct reason for (a)
- Q.37 Match the entries in **Group I** with the process parameters in **Group II**.

#### Group I **Group II** P. Clark electrode 1. Liquid level Q. Redox probe 2. Dissolved oxygen concentration R. Load cell 3. Vessel pressure S. pH (anaerobic process) Diaphragm gauge 4. (B) P-4, Q-2, R-3, S-1 (A) P-2, Q-1, R-3, S-4 (C) P-2, Q-4, R-1, S-3 (D) P-2, Q-1, R-4, S-3

Q.38 Match the downstream processes in **Group I** with the products in **Group II**.

#### Group I Group II

R.	Solvent extraction Protein-A linked affinity chromatography Extractive distillation Salting out	1. 2. 3. 4.	Lactic acid Penicillin Monoclonal antibody Lipase
` ′	2-2, Q-3, R-1, S-4 -4, Q-1, R-3, S-2	` ′	, Q-1, R-2, S-3

Q.39 Determine the correctness or otherwise of the following **Assertion** (a) and **Reason** (r).

**Assertion**: Cell mass yield of a methylotrophic yeast is more on methanol compared to glucose. **Reason**: Methanol has a greater degree of reductance compared to glucose.

- (A) Both (a) and (r) are correct and (r) is the correct reason for (a)
- (B) (a) is correct, (r) is false
- (C) (a) is false, (r) is correct
- (D) Both (a) and (r) are correct but (r) is not the correct reason for (a)
- Q.40 A disease is inherited by a child with a probability of 1/4. In a family with two children, the probability that exactly one sibling is affected by this disease is
  - (A) 1/4
- (B) 3/8
- (C) 7/16
- (D) 9/16

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Q.41 Match the organisms in **Group I** with the entries in **Group II**.

#### Group I

#### P. Clostridium

- Q. Escherichia
- R. Vibrio
- S. Bacillus

#### **Group II**

- 1. Rods with teichoic acid in the cell wall
- 2. Rods with endospores
- 3. Helical rods with flagella
- 4. Rods with LPS in the outer membrane
- 5. Curved rods with polar flagella

- (A) P-2, Q-4, R-5, S-1
- (C) P-5, Q-4, R-2, S-3

- (B) P-2, Q-1, R-5, S-4
- (D) P-3, Q-2, R-1, S-4
- Q.42 Match the entries in **Group I** with the methods of sterilization in **Group II**.

#### **Group I**

- P. Serum
- O. Luria broth
- R. Polypropylene tubes
- S. Biological safety cabinets
- **Group II**
- 1. Autoclave
- 2. Membrane filtration
- 3. UV irradiation
- 4. Gamma irradiation
- 5. Dry heat

- (A) P-5, Q-3, R-1, S-4
- (C) P-2, Q-1, R-4, S-3

- (B) P-1, Q-4, R-5, S-3
- (D) P-4, Q-1, R-3, S-5
- Q.43 Match the high energy compounds in **Group I** with the biosynthetic pathways for the molecules in **Group II.**

#### **Group I**

- P. GTP
- Q. UTP
- R. CTP
- S. Acyl coenzyme A
- (A) P-3, Q-2, R-4, S-1
- (C) P-4, Q-3, R-1, S-2

- **Group II**
- 1. Fatty acid
- 2. Phospholipid
- 3. Protein
- 4. Peptidoglycan
- (B) P-2, Q-4, R-3, S-1
- (D) P-3, Q-4, R-2, S-1
- Q.44 Match the vitamins in **Group I** with the processes/reactions in **Group II**.

#### Group I

- P. Pantothenic acid
- Q. Vitamin B2
- R. Vitamin B6
- S. Folic acid
- (A) P-5, Q-2, R-4, S-1
- (C) P-4, Q-2, R-1, S-3

#### Group II

- 1. Electron transport
- 2. Transfer of 1-C units
- 3. Decarboxylation
- 4. Fatty acid metabolism
- 5. Hydrolysis
- (B) P-4, Q-1, R-3, S-2
- (D) P-2, Q-1, R-3, S-5

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Q.45 Consider the data set 14, 18, 14, 14, 10, 29, 33, 31, 25. If you add 20 to each of the values, then

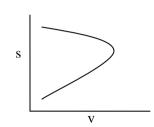
- (A) both mean and variance change
- (B) both mean and variance are unchanged
- (C) the mean is unchanged, variance changes
- (D) the mean changes, the variance is unchanged

Q.46 An enzymatic reaction is described by the following rate expression.

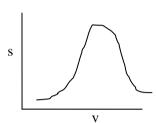
$$v = \frac{v_m s}{k_m + s + s^2 / k_s}$$

Which one of the following curves represents this expression?

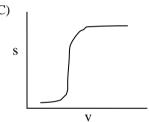
(A)



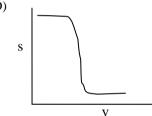
(B)



(C)



(D)



Q.47 A bacterial culture (200  $\mu$ l containing 1.8  $\times$  10<sup>9</sup> cells) was treated with an antibiotic Z (50  $\mu$ g per ml) for 4 h at 37°C. After this treatment, the culture was divided into two equal aliquots.

Set A: 100 µl was plated on Luria agar.

Set B: 100 µl was centrifuged, the cell pellet washed and plated on Luria agar.

After incubating these two plates for 24 h at  $37^{\circ}$ C, Set A plate showed no colonies, whereas the Set B plate showed  $0.9 \times 10^{9}$  cells. This experiment showed that the antibiotic Z is

(A) bacteriostatic

(B) bacteriocidal

(C) bacteriolytic

(D) apoptotic

#### **Common Data Questions**

#### Common Data for Questions 48 and 49:

In a muscle, the extracellular and intracellular concentrations of Na<sup>+</sup> are 150 mM and 12 mM, and those of K<sup>+</sup> are 2.7 mM and 140 mM, respectively. Assume that the temperature is 25°C and that the membrane potential is -60 mV, with the interior more negatively charged than the exterior. ( $R = 8.314 \text{ J mol}^{-1} \text{ K}^{-1}$ ;  $F = 96.45 \text{ kJ mol}^{-1} \text{ V}^{-1}$ )

Q.48 The free energy change for the transport of three Na<sup>+</sup> out of the cell is

(A) +1.5 kJ/mol

(B) +17.4 kJ/mol

(C) +18.9 kJ/mol

(D) +36.3 kJ/mol

Q.49 The free energy change for the transport of two K<sup>+</sup> into the cell is

(A) +8.0 kJ/mol

(B) +11.6 kJ/mol

(C) +19.6 kJ/mol

(D) +31.2 kJ/mol

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#### Common Data for Questions 50 and 51:

The purification data for an enzyme is given below:

	Step	Volume	Total protein	Total activity	Specific activity
		(ml)	(mg)	(Units)	(Units/mg)
P	Cell-free extract	17	177	102	0.58
Q	Q- Sepharose	14	18.8	72	3.83
R	Phenyl Sepharose	26	9.2	45	4.89
S	Sephacryl S-200	7	4.1	30	7.32

Q.50 The fold purification for each step is

(A) P-0.1, Q-0.66, R-0.84, S-1.26

(B) P-1.0, Q-0.52, R-0.67, S-0.8

(C) P-1, Q-6.6, R-8.4, S-12.6

(D) P-100, Q-66, R-84, S-12

Q.51 The yield (%) for each step is

(A) P-10, Q-7.2, R-4.5, S-2.0

(B) P-34, Q-24, R-15, S-1

(C) P-3.4, Q-2.4, R-1.5, S-0.1

(D) P-100, Q-71, R-44, S-29

#### **Linked Answer Questions**

#### Statement for Linked Answer Questions 52 and 53:

An *E. coli* cell of volume  $10^{-12}$  cm<sup>3</sup> contains 60 molecules of lac-repressor. The repressor has a binding affinity ( $K_d$ ) of  $10^{-8}$  M and  $10^{-9}$  M with and without lactose respectively, in the medium.

Q.52 The molar concentration of the repressor in the cell is

(A) 0.1 nM

(B) 1 nM

(C) 10 nM

(D) 100 nM

Q.53 Therefore the lac-operon is

- (A) repressed and can only be induced with lactose.
- (B) repressed and cannot be induced with lactose.
- (C) not repressed.
- (D) expressed only when glucose and lactose are present.

#### Statement for Linked Answer Questions 54 and 55:

β-Galactosidase bound to DEAE-cellulose is used to hydrolyze lactose to glucose and galactose in a plug flow bioreactor with a packed bed of volume 100 liters and a voidage (ε) of 0.55. The  $K'_m$  and  $V'_{max}$  for the immobilized enzyme are 0.72 gl<sup>-1</sup> and 18 gl<sup>-1</sup>h<sup>-1</sup>, respectively. The lactose concentration in the field stream is 20 gl<sup>-1</sup>, and a fractional conversion of 0.90 is desired. Diffusional limitations may be ignored.

Q.54 The residence time required for the steady state reactor operation will be

(A) 0.1 h

(B) 0.4 h

(C) 1.0 h

(D) 1.1 h

Q.55 The feed flow rate required for the above bioconversion will be

(A) 50 lh<sup>-1</sup>

(B) 55 lh<sup>-1</sup>

(C) 137 lh<sup>-1</sup>

(D) 550 lh<sup>-1</sup>

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# General Aptitude (GA) Questions

Q. 56 –	Q.	<b>60</b>	carry	one	mark	each.
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Q. 50	Q. oo carry one i	naik cacii.				
Q.56	The cost function for a product in a firm is given by $5q^2$ , where $q$ is the amount of production. The firm can sell the product at a market price of $\Sigma$ 50 per unit. The number of units to be produced by the firm such that the profit is maximized is					
	(A) 5	(B) 10	(C) 15	(D) 25		
Q.57	Choose the most appresentence:	ropriate alternative from	n the options given belo	w to complete the following		
	Suresh's dog is the o	ne was hurt	in the stampede.			
	(A) that	(B) which	(C) who	(D) whom		
Q.58	Choose the grammatic	cally INCORRECT sen	tence:			
	<ul><li>(A) They gave us the money back less the service charges of Three Hundred rupees.</li><li>(B) This country's expenditure is not less than that of Bangladesh.</li><li>(C) The committee initially asked for a funding of Fifty Lakh rupees, but later settled for a lesser sum.</li></ul>					
	(D) This country's exp	penditure on educational	reforms is very less.			
Q.59	Which one of the follo	owing options is the clos	est in meaning to the wo	ord given below?		
	Mitigate					
	(A) Diminish	(B) Divulge	(C) Dedicate	(D) Denote		
Q.60	Choose the most appresentence:	ropriate alternative from	n the options given belo	w to complete the following		
	Despite several	the mission succe	eeded in its attempt to i	resolve the conflict.		
	(A) attempts	(B) setbacks	(C) meetings	(D) delegations		
Q. 61 -	· Q. 65 carry two n	narks each.				
Q.61	Wanted Temporary, Part-time persons for the post of Field Interviewer to conduct personal interviews to collect and collate economic data. Requirements: High School-pass, must be available for Day, Evening and Saturday work. Transportation paid, expenses reimbursed.					
	Which one of the following is the best inference from the above advertisement?					
	<ul><li>(A) Gender-discriminatory</li><li>(B) Xenophobic</li><li>(C) Not designed to make the post attractive</li><li>(D) Not gender-discriminatory</li></ul>					
Q.62	Given the sequence of	fterms, AD CG FK JF	P, the next term is			
	(A) OV	(B) OW	(C) PV	(D) PW		

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- Q.63 Which of the following assertions are **CORRECT**?
  - P: Adding 7 to each entry in a list adds 7 to the mean of the list
  - Q: Adding 7 to each entry in a list adds 7 to the standard deviation of the list
  - R: Doubling each entry in a list doubles the mean of the list
  - S: Doubling each entry in a list leaves the standard deviation of the list unchanged
  - (A) P, Q
- (B) O, R
- (C) P, R
- (D) R, S
- Q.64 An automobile plant contracted to buy shock absorbers from two suppliers X and Y. X supplies 60% and Y supplies 40% of the shock absorbers. All shock absorbers are subjected to a quality test. The ones that pass the quality test are considered reliable. Of X's shock absorbers, 96% are reliable. Of Y's shock absorbers, 72% are reliable.

The probability that a randomly chosen shock absorber, which is found to be reliable, is made by Y is

- (A) 0.288
- (B) 0.334
- (C) 0.667
- (D) 0.720
- Q.65 A political party orders an arch for the entrance to the ground in which the annual convention is being held. The profile of the arch follows the equation  $y = 2x 0.1x^2$  where y is the height of the arch in meters. The maximum possible height of the arch is
  - (A) 8 meters
- (B) 10 meters
- (C) 12 meters
- (D) 14 meters

#### END OF THE QUESTION PAPER

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## GATE 2012 - Answer Key - Paper : BT

Paper	Question no.	Key
BT	1	С
BT	2	Α
BT	3	С
BT	4	D
BT	5	В
BT	6	D
BT	7	С
BT	8	В
BT	9	С
BT	10	Α
BT	11	С
BT	12	В
BT	13	С
BT	14	В
BT	15	Α
BT	16	D
BT	17	С
BT	18	С
BT	19	В
BT	20	Α
BT	21	D
BT	22	D
BT	23	В
BT	24	С
BT	25	С
BT	26	В
BT	27	Α
BT	28	В
BT	29	D
ВТ	30	В
ВТ	31	Α
ВТ	32	С
BT	33	С
ВТ	34	В
ВТ	35	Α

Paper	Question no.	Key
BT	36	D
ВТ	37	С
ВТ	38	Α
ВТ	39	A
ВТ	40	В
BT	41	А
BT	42	С
BT	43	D
BT	44	В
BT	45	D
BT	46	А
BT	47	А
ВТ	48	D
ВТ	49	А
BT	50	С
ВТ	51	D
ВТ	52	D
BT	53	В
BT	54	Marks to All
ВТ	55	Marks to All
BT	56	А
BT	57	Marks to All
BT	58	D
BT	59	A
BT	60	В
ВТ	61	D
ВТ	62	А
ВТ	63	С
ВТ	64	В
BT	65	В